United States Department of Agriculture
Forest Service

Hermosa Creek Watershed Management Plan

Environmental Assessment

Columbine Ranger District, San Juan National Forest,
La Plata and San Juan Counties, Colorado

Townships 36-40 North, Ranges 9-11 West, N.M.P.M.

September 2017

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Cover Photo: Hermosa Park with historic Harris Ranch in the foreground and Purgatory Ski Area in the background. Photo credit Cam Hooley.

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1.0 INTRODUCTION

The Forest Service (FS) has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) (*P.L. 91-190*) and other relevant federal laws and regulations. This EA discloses the potential environmental consequences that may result from the adoption of a management plan for the Hermosa Creek Watershed. Preparation of this EA will determine whether implementation of the proposal may significantly affect the quality of the human environment and thereby require the preparation of an environmental impact statement.

Background

In 2006, a regional grass-roots group called the River Protection Workgroup was organized to address local water resource issues. The workgroup brought diverse stakeholders together in a collaborative process to determine values needing protection, such as ecological, economic and social; to recommend the types of tools necessary to protect the values; and to make recommendations and take action in the context of striking a balance between the protection of natural values and water development. The River Protection Workgroup formed five sub-groups to focus on five local watersheds: the San Juan River, the Piedra River, the Pine River/Vallecito Creek, the Animas River, and Hermosa Creek.

The Hermosa Creek sub-Workgroup met from 2008-2010. The collaborative, community process, which operated on consensus, involved many citizens and organizations in discussions about the human and natural values in the Hermosa Creek watershed. It was a group represented by many points of view, including water users, recreational users, state agencies, the Southern Ute Tribe, conservation organizations, and US Congressional representatives. After almost two years of work, the Hermosa Creek Workgroup arrived at a set of recommendations. Central to their work was recommending that special federal legislation be developed, introduced, and passed. Their final report and recommendations were forwarded to the US Congress in 2010.

After several years of drafts, working through committees, and changes in congressional representatives, the Hermosa Creek Watershed Protection legislation was finally signed into law on December 19, 2014 as Section 3062 in the Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 (PL 113-291). Throughout the remainder of this document, this is referred to as "the legislation."

The legislation divided the watershed into a Special Management Area (SMA) and a wilderness area. Within the SMA, the legislation also delineates the East Hermosa Roadless Area (which was already a designated Colorado Roadless Area before the legislation), and Parcels A and B, which relate to mineral interests.

A brief summary of the key points of the legislation follows; the legislation is attached in its entirety in Appendix A. The legislation states that:

> "The purpose of the Special Management Area is to conserve and protect for the benefit of present and future generations the watershed, geological, cultural, natural, scientific, recreational, wildlife, riparian, historical, educational, and scenic resources of the Special Management Area."

The legislation states that the following uses ***shall*** be authorized:

- Motorized and mechanized vehicles, but only on roads and trails designated by the FS.
- Over-snow vehicles, subject to terms and conditions as required by the FS.
- Grazing, if already established before the Act, subject to applicable laws and orders.

The legislation further ***prohibits*** the following activities:

- Road construction in the East Hermosa Roadless Area, except as allowed by the Colorado Roadless Rule.
- Commercial timber harvest in the East Hermosa Roadless Area, except as allowed by the Colorado Roadless Rule.
- Disposal of land, mining patents, and mineral leases, subject to valid existing rights, except in parcels A and B.

The legislation states that the following activities ***may occur***:

- Management of wildland fire and hazardous fuels.
- Management of insects and diseases.

Need for this Plan

The need for this Hermosa Creek Watershed Management Plan (hereafter referred to as the Hermosa Plan) is to meet the requirement set forth in the legislation to develop a management plan for the Hermosa Creek Special Management Area within three years of the enactment of the legislation. The FS chose to write a management plan that encompasses the entire watershed, including not only the SMA, but also the Hermosa Creek Wilderness.

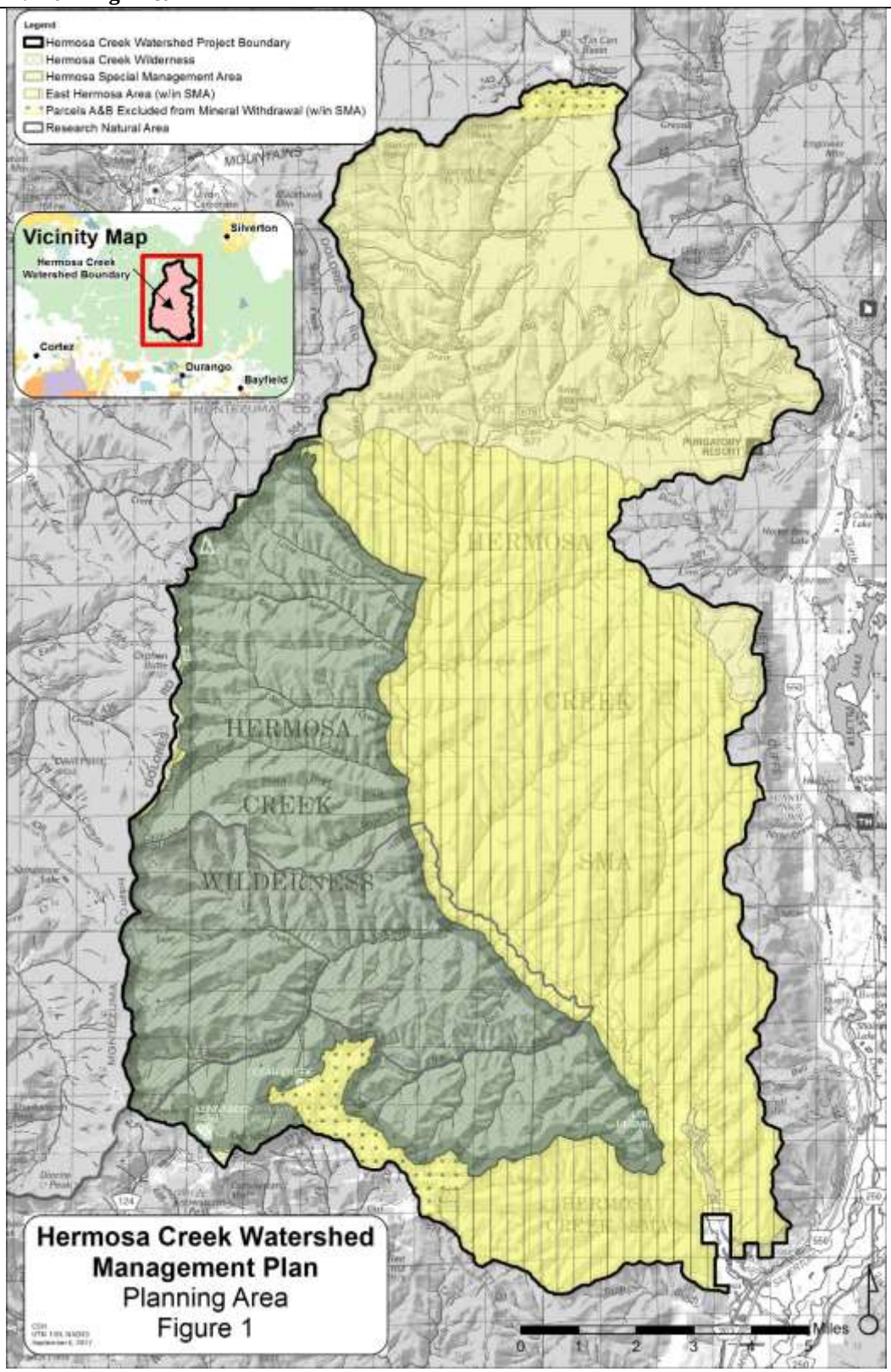
Additionally, the FS also elected to undertake project-level planning for recreation and travel management in the watershed in conjunction with writing the required management plan. The need for recreation planning is to comply with the requirements of the Travel Management Rule (*36 CFR 212*), and Executive Orders 11644 and 11989, to provide for a range of recreational opportunities, and to address resource impacts caused by recreational and transportation activities within the watershed. Travel management planning will also allow the FS to better implement the legislation by addressing the details of *how* to meet its purposes of conserving and protecting the multiple resources of the SMA.

The FS will also complete the establishment record for the previously recommended Hermosa Research Natural Area (RNA). The RNA Establishment Record is an administrative document that will not involve public comment, but is needed in order to comply with requirements set forth in the Forest Plan. These additional elements, while not required by the legislation, are required by other regulations and policies, and are appropriately addressed at the same time.

Planning Area

The planning area encompasses approximately 107,900 acres of federal lands within the Hermosa Creek watershed, which is located north of Durango, within La Plata and San Juan Counties, Colorado, Townships 36-40 North, Ranges 9-11West, N.M.P.M. The watershed ranges in elevation from approximately 6,800 feet in the southern Lower Hermosa area to approximately 12,500 feet at Hermosa Peak on the northwest boundary. The watershed contains vegetation types including Gambel oak/ponderosa pine, mixed conifer, aspen, spruce-fir, and alpine. See Figure 1 - Planning Area.

FIGURE 1. Planning Area



The planning area is divided into several categories as follows:

Hermosa Creek Watershed planning area – 107,900 acres total
(1) Hermosa Creek Wilderness – 37,400 acres
  (a) RNA – 15,500 acres
(2) Special Management Area – 70,600 acres
  (a) Parcels A and B – 2,400 acres
  (b) East Hermosa Roadless Area – 43,200 acres

The enabling legislation required the preparation of maps and legal descriptions of the Hermosa SMA. Slight corrections to SMA and Wilderness boundaries have been made from the map that was used to prepare the legislation, as needed to match topographic and existing features on the ground, while meeting the intent of the legislation. Figure 1 depicts these corrected boundaries, although changes are too slight to be seen at this scale; electronic Geographic Information System mapping is available upon request.

Management Planning Overview

Scope and Applicability of this Hermosa Plan

The planning area includes all National Forest System lands within the boundaries of the Hermosa Creek watershed. Policy set forth in this Hermosa Plan does not apply to private land or patented mining claims. This Hermosa Plan sets the stage and provides strategic guidance for the Hermosa watershed. It does not propose any project-level activities nor will the decision approve any specific actions, with the exception of recreation facilities and travel management regulations that are being proposed at this time.

Before authorizing any other specific project or land-use activity within the watershed which is not described in this EA, the FS must complete a site-specific decision, which will require compliance with NEPA and other environmental laws such at the Endangered Species Act, the Clean Water Act, and the National Historic Preservation Act. When a specific project or activity is proposed, additional public involvement will occur, site specific effects will be analyzed, and decisions will be made regarding those specific projects or activities. All applicable laws and regulations, in addition to the Hermosa Creek legislation, will apply.

Relationship of this Plan to the RNA Establishment Record

The Forest Plan recommends the Hermosa Research Natural Area (RNA) for designation, and contains an objective to complete establishment records for designated RNAs within four years from the date of the Forest Plan. The Hermosa RNA Establishment Record is considered a stand-alone document and is not a Forest Plan Amendment; it is an administrative document that will not involve public comment, therefore, while it will be included as an appendix for reference purposes in the Final Hermosa Creek Watershed Management Plan, it is not included in this EA for comment.

Relationship of this Plan to the Forest Plan

This Hermosa Plan will result in an amendment to the San Juan National Forest (SJNF) Land and Resource Management Plan (hereafter called the Forest Plan) (*SJNF 2013*), which will follow 36 CFR 219 notice, comment, and objection processes. All Desired Conditions, Objectives, Standards, and Guidelines, and other guidance and descriptions given in the Forest Plan are

applicable to this Hermosa Plan, unless specifically noted herein as being changed. Certain parts of both Chapters 2 and 3 of the Forest Plan need to be amended as a result of this Hermosa Plan; the amendment will occur as a new Forest Plan section labeled *3.28- Hermosa Creek Watershed*. Proposals for the Forest Plan amendment can be found in the *Alternatives for Forest Plan Amendment* section of this EA.

Certain items in the Forest Plan were superseded by the legislation. For example, the designation of the Hermosa Creek Wilderness and the SMA automatically changed Forest Plan categorizations such as management areas, Recreation Opportunity Spectrum, some suitability determinations, and acreage figures. These non-discretionary administrative changes are noted throughout this document and are shown in this EA as the current condition. For this reason however, certain items currently written or mapped in the Forest Plan will not be reflected in this EA because they are no longer relevant, and including them here would be confusing.

Relationship of this Plan to Wilderness Management Direction

The passage of the legislation in December 2014 established the Hermosa Creek Wilderness, which is considered part of the current condition. The Forest Plan incorporates the SJNF Wilderness Management Direction, which was written in 1998 for all of the wilderness areas on the Forest at that time. This Hermosa Plan will adopt the same management prescriptions and guidance for the new Hermosa Creek Wilderness, unless specifically noted herein as being different; this will be part of the Forest Plan Amendment.

Relationship of this Plan to Colorado Roadless Areas

Colorado Roadless Areas were designated in the Hermosa watershed prior to the passage of the Hermosa Creek legislation when the Colorado Roadless Rule was promulgated in 2012 (*36 CFR 294*). There are three Roadless Areas with acreage in the watershed: the Hermosa Roadless Area (also called the East Hermosa Area in the legislation) with about 43,200 acres, the Blackhawk Roadless Area with 4,480 acres and the San Miguel Roadless Area with 1,280 acres. The Hermosa Creek legislation does not change, overturn, contradict, or expand upon the regulations pertaining to Colorado Roadless Areas; however, because a statutory wilderness takes precedence over a regulatory roadless area, a boundary modification to conform to the legislation will be made, using procedures set forth under the Colorado Roadless Rule. Areas in the watershed outside of wilderness that are Roadless Areas will continue to be managed under regulations set forth in the Colorado Roadless Rule, with the legislation as an additional layer of regulation guiding the management of those areas. Refer to Roadless Rule regulations for further information.

Relationship of this Plan to Recreation and Travel Management

A Recreation and Travel Management project analysis has been prepared as part of this Hermosa Plan. It is considered a stand-alone project-level analysis which will result in a separate decision and will follow 36 CFR 218 notice, comment, and objection processes. It will not be a Forest Plan Amendment, but is an integral part of this Hermosa Plan. Proposals for the Recreation and Travel Management project can be found in the *Alternatives for Recreation and Travel Management Project* section of this EA.

Relationship of this Plan to Other Authorizations and Decisions

Previous project-level decisions and subsequent authorizations for a variety of actions and activities has occurred. Some of these projects are on-going activities such as livestock grazing (*SJNF 2009*), ski area operation (*SJNF 2008*), outfitter/guide operations, and multi-year recreation events. Other one-time discrete actions may have also been authorized that have not been completed yet, such as some streambank restoration projects and fencing around Lower Hermosa Campground. Unless a specific facet of the activity is identified as not being in compliance with the legislation or with wilderness direction, those previously authorized activities will continue to be implemented and are governed by their respective supporting documents such as NEPA decisions, design criteria, mitigation measures, special use permits, and annual operating plans.

Future implementation of projects proposed in this EA would not likely require additional NEPA decisions, although some projects would require site-specific on-the-ground analysis and clearances by FS staff to determine exact project design and mitigation measures. If future projects vary excessively from descriptions in this EA, an additional public decision making process may be determined to be necessary. Whether additional analysis and/or public involvement is required will determined at the time a specific project is being considered for implementation.

Document Organization and Terminology

Document Organization

This EA presents analysis that covers both a proposed amendment to Forest Plan level guidance, and proposed project-level facilities and regulations for travel management. These two levels of proposals are described in separate *Alternatives* sections, including some alternatives that were not analyzed in detail, and separate *Environmental Analysis* sections.

Within the *Alternatives for Forest Plan Amendment* section, proposals for alternatives to Forest Plan direction follow the format from the Forest Plan, which is organized by Resource Direction, Area Direction, and Allowable Uses. A proposed Monitoring Plan then follows.

Within the *Alternatives for Recreation and Travel Management* section, the discussion of alternatives is organized by proposals for roads, proposals for trails, proposals for over-snow travel, and proposals for camping and facilities, followed by design criteria applicable to all alternatives.

The *Environmental Analysis of Impacts* section describes the environmental effects of implementing the alternatives. Within each resource area, the affected environment is described first, followed by a comparison of the environmental consequences of implementing the Plan-level alternatives, a comparison of the environmental consequences of implementing the project-level alternatives, and a cumulative impacts description.

The *Appendix* contains the enabling Hermosa Creek Watershed Protection legislation.

Plan Terminology

Plan direction is divided into several interrelated components: *desired conditions*, which, when taken as a whole, make up the vision and goals for management of the watershed; *objectives*, *suitability*, and *allowable uses*, which comprise the plan strategy that will be used to achieve the

vision and goals; and *standards* and *guidelines*, which are the criteria and controls used to execute the strategy. This management direction and guidance (also referred to as plan components) is followed in future implementation of projects and activities. The purpose of each of these plan components is described in greater detail below. The number of plan components under each resource or area varies due to the varying complexity of the resource, the extent of existing management direction already provided by law, regulation, policy, and the Forest Plan, the need for action, and priorities. Some resources or areas may not include any amendments, or may not include amendments to all the types of Forest Plan components. The direction given in this Hermosa Plan does not apply to other ownerships or jurisdictions.

Desired Conditions encompass the overarching goals of the land and resource management. They are statements of the social, economic, and ecological attributes and values toward which management strives to achieve and characterize or exemplify the desired outcomes of land management. They describe how the area is expected to look and function in the future. Some desired conditions are general, while others are quite specific. Desired conditions are aspirations; they may only be achievable over the long term.

Objectives are concise projections of measurable, time-specific intended outcomes. Objectives are a means of progressing toward maintaining and/or achieving desired conditions. As with desired conditions, they are aspirations, not commitments or final project decisions. Implementation and achievement would rely upon sufficient funding and staffing levels.

Standards are approaches or conditions that are determined to be necessary to meet desired conditions and objectives, and/or to ensure the long-term viability of resources. A standard (worded as "must" or "shall") describes a course of action that must be followed or a level of attainment that must be reached. Deviations from standards would require analysis and documentation through a subsequent land management plan amendment.

Guidelines (worded as "should") are presumptively requirements to meet desired future conditions and objectives, and/or to ensure the long-term viability of resources. Guidelines allow some flexibility in approach as conditions change and new information is obtained. Deviations from guidelines require documentation of the reasons for deviation as part of the project decision, and explanation of how the intent of the guideline is being met through alternative means.

Suitability and Allowable Uses are defined by the capability of an area to accommodate specific uses and activities in a sustainable manner based on the area's inherent biophysical characteristics, public input, and the balancing of desired conditions for multiple resources. Suitability determinations are general determinations at the landscape level that can be refined as necessary at the project level. The allowable use table at the end of Chapter 2 shows the suitability of these uses in the Hermosa watershed and also identifies other activities that are allowed, restricted, or prohibited.

Development of Alternatives

Public Involvement and Tribal Consultation

Scoping for development of the Hermosa Plan began soon after the legislation was passed. An open house and a public meeting were held in March 2015 to set the stage for the planning process to come, and to solicit public input on issues, concerns, and opportunities that should be addressed in the Hermosa Plan. Press releases, emails, and direct mailing of letters were also utilized to solicit input. Four public field trips were held at various locations throughout the watershed in the summer of 2015, to observe and discuss issues and uses on the ground. One public winter field trip was also held in February 2016. In June 2016, an *Initial Draft Proposed Action* was released, laying out the FS's ideas of what the Hermosa Plan should include in the way of Forest Plan amendments and recreation and travel management proposals. Official scoping concluded in October 2016.

Tribal consultation was initiated with approximately 26 tribes and pueblos that are culturally affiliated and traditionally associated with the SJNF. All 26 pueblos and tribes were informed of the process and were offered a visit from agency officials to gather input and provide further information about the management plan. There have been face to face meetings with some of the pueblos and tribes, in addition to letters updating all 26 pueblos and tribes on the progress of the management plan and inviting them to consult. The Forest has also conducted two consultation field trips with the Southern Ute Indian Tribe Cultural Preservation Office Representatives. Tribal consultation is ongoing.

Through the end of the official scoping period, scoping responses were received from about 126 sources, including individuals, organizations, businesses, other agencies, local governments, tribes, and also from internal specialists and managers. Based on these responses, the proposed action was slightly altered and alternatives were formulated in response to many of the comments.

Scoping input also helped identify the scope of issues to be analyzed in this EA. The main issues identified were: summer recreation impacts, winter recreation impacts, dispersed camping impacts, vegetation management and forest health impacts, maintaining water quality and fish populations, and impacts to wildlife. Comments were often two-pronged within the same issue; for example, the majority of comments were regarding potential impacts *to* various recreational opportunities from management actions, but there were also comments regarding the impacts *from* those recreational activities on natural resources or on other users. A Scoping Summary can be found in the project record and is available upon request.

A 30-day public comment period is initiated with the release of this EA. Because the Hermosa Plan will include both a Forest Plan-level decision and a project-level decision, it falls under two sets of notice, comment, and objection regulations. Plan-level actions will adhere to 36 CFR 219 regulations; project-level actions will adhere to 36 CFR 218 regulations. Both sets of regulations require individuals or entities to submit input during designated public comment periods in order to be eligible to formally object to the decisions that will follow this analysis. Specific eligibility requirements are defined by 36 CFR 218.25(a)(3), and 36 CFR 219.53. The 30-day comment period for this EA is concurrent for both sets of regulations, and commenters should specify

whether their comments pertain to the Plan-level proposal or to the project-level proposals, or both.

The following generalized descriptions of alternatives were developed based on internal and external scoping feedback. Details of the alternatives can be found in the *Alternatives for Forest Plan Amendment* and *Alternatives for Recreation and Travel Management Project* sections.

Alternative 1 – No Action/Current Conditions.

All current Forest Plan guidance would apply, and the Forest Plan would not be amended with new guidance or new components for the Hermosa watershed. Non-discretionary administrative changes to the Forest Plan that are required for conformance with the legislation *would* be made. This alternative does not include proposals for travel management, dispersed camping, Minimum Road System identification, or recreation or transportation facilities.

Alternative 2 – Proposed Action/Emphasis on Balanced Management

This alternative is primarily as was described in the *Initial Draft Proposed Action* that was released for public scoping, with some adjustments based on scoping feedback. This is the alternative that the FS believes best represents the purposes of the legislation and balances the emphases and uses of the watershed.

Alternative 3 –Emphasis on Active Management.

This alternative would emphasize more active management of the watershed through more infrastructure, and would include less restrictive recreation direction. This alternative includes more of the user-suggested designations for adding trails to the system, more motorized trails, and less restrictions on dispersed camping.

Alternative 4 –Emphasis on Less Disturbance.

This alternative would include less developed infrastructure, more restrictive recreation and dispersed camping guidance, and would provide for more quiet and non-mechanized use. This alternative also would put less emphasis on vegetation management for ecological restoration.

Alternatives Considered but not Analyzed in Detail for Forest Plan Amendment

There were many suggestions for alternatives relating to the Forest Plan amendment that were considered, but ultimately dismissed and not analyzed in detail. The following alternatives, parts of alternatives, and suggestions were considered by the FS, but dismissed from detailed consideration and analysis.

Several comments were received suggesting alternatives for things that are not possible because they would be in conflict with the legislation. For example, one comment requested that the acreage classified as "suitable for timber production" should not be re-classified as "tentatively suitable." We carefully considered the definition for suitable in the Forest Plan, along with the wording in the legislation, and determined that the legislation precludes the classification of any of the watershed as suitable for timber production.

Some other commenters wanted us to give priority to one type of use or purpose over others. The legislation's stated purposes are many, and it does not give a higher precedence to any purpose over another; in fact, the legislation goes to great lengths to ensure that a variety of uses are

equally provided for, and does not rank their importance. Therefore these alternatives that would have been in conflict with the legislation were dismissed from consideration.

One commenter requested that large exclosures be installed to monitor vegetation conditions. We dismissed this suggestion from detailed analysis because installation and maintenance of large exclosures, and the collection of additional data, are commitments that are unnecessary because of monitoring already being conducted. The Forest Plan requires monitoring at a large scale, which includes sites within the watershed. Furthermore, the grazing decision for the allotments in the watershed (*SJNF 2009*) requires monitoring at the allotment scale, and additionally, this Hermosa Plan proposes additional monitoring for watershed conditions.

A suggestion was made that aquatic invasive species should be considered, along with terrestrial invasive species. While the commenter did not specifically note which species they were concerned about, management for those aquatic species for which there is a practical treatment is already occurring. The cutthroat re-introduction program is specifically eliminating non-native vertebrate fish species in stream segments where cutthroats are the focus of management. We are unaware of any practical treatment for undesirable non-vertebrate aquatic species (whirling disease, *didymo*) other than prevention of spread, which is already addressed in our proposed action through educational signage. For these reasons, this suggestion was dismissed from detailed analysis.

Another suggestion was made that an alternative include aquatic insect inoculations where rotenone has been used. The underlying concern that fish habitat be preserved is covered by the guidance in the Forest Plan and the proposed guidance in this Hermosa Plan. The suggestion for insect inoculation is more appropriately analyzed at the project level when a specific fish re-introduction project is proposed. For this reason, it was dismissed from detailed analysis as part of this Hermosa Plan.

One commenter wanted more than five acres of wetland restoration to be included in the proposed objective in the *Riparian Area and Wetland Ecosystems* section. The wording of the objective states that *at least* five degraded acres would be restored within ten years. This allows more to be accomplished if appropriate sites and funding are identified, while setting a reasonable expectation. For this reason, the suggestion was dismissed from detailed consideration as unnecessary.

Other suggestions and comments were dismissed as non-issues and not considered further for analysis in an alternative. The reasons for being classified as non-issues can be found in the Scoping Summary.

Alternatives Considered but not Analyzed in Detail for Recreation and Travel Management Project

There were many suggestions for alternatives relating to recreation management that were considered, but ultimately dismissed and not analyzed in detail. The following alternatives, parts of alternatives, and suggestions were considered by the FS, but dismissed from detailed consideration and analysis.

Some comments suggested alternatives for things that are not possible because they would be in conflict with the legislation; for example, one commenter requested that we close the whole

watershed to motorized and mechanized use. Another commenter asked that bicycles be allowed to go cross-country in designated areas. These ideas are in direct conflict with the legislation, which states that both mechanized and motorized uses shall be permitted, and that they be allowed only on designated roads and trails.

Several commenters suggested things that would be prohibitively expensive or impractical to implement. These included: creating a parallel trail along Hermosa Creek for foot traffic only, which would be very expensive because of its length, and the narrow topography of the canyon would not allow for it in places; constructing a connector trail between the Colorado Trail and the Hermosa Creek Trail south of the wilderness, which would have to cross private land and include expensive construction to negotiate an extremely steep cliff face; and designating a Relay-to-Graysill trail connection to Bolam Pass, which would require highly engineered trail construction because there are a lot of wet seeps and springs along the route.

One person recommended closing trails 521, 518, 516, and 514 to motorized use for watershed protection. The FS did not consider this idea in detail because these uses have been in place for decades, and to remove them at this time was not justified by the degree of resource concerns or by the degree of disruption to established uses that would occur.

Another commenter asked that Elbert and Little Elk Trails be designated as motorized single-track trails. The FS did not consider this suggestion in detail because this would be a major change in use of a large portion of the SMA and the potential for conflicts with other resources would be too high, including grazing, hunting, and increased erosion.

Mountain bike advocates asked for a parking area to be built at the Forest boundary on the Lower Hermosa Road 576, along with designation of the so-called Seth's Trail as a system trail. Seth's Trail parallels the Lower Hermosa Road 576. By designating Seth's Trail and a lower parking lot, the stated safety concerns of bikes riding on the road would only be increased. Many more bikes would unload at the lower parking area if it were officially recognized, and then either ride on the road anyway, or ride Seth's Trail. The trail crosses the road two times, and road/bike trail crossings are notoriously dangerous situations that should be avoided when possible. The FS did not consider these suggestions in detail because a trailhead parking area is already provided at the end of the road in a safer location.

An assortment of comments containing numerous variations of seasonal closure dates were made, with the longest-lasting date range extending from September 1 - June 30. The FS chose the proposed closure dates of November - May based on the typical time of year when most of the roads and trails are dry enough to prevent surface damage. The proposed date range also considers that environmental modeling predicts that there will likely be shorter snow seasons and/or less snowpack in the future, therefore, earlier closing dates or later opening dates don't seem reasonable. The FS recognizes the demand, and the need to provide, for recreation opportunities during shoulder seasons close to town at lower elevations. An earlier opening date was not chosen because late spring storms at the higher elevations can render the roads and trails too wet for travel, and because the access through the ski area is often still being used as a ski run into April. A later opening date was not chosen because, while we recognize the proposed opening date has potential to disturb some elk calving, within the project area about 2/3 of mapped elk production areas are within large blocks of security habitat away from motorized

uses. The security areas are important because they contribute to the maintenance of viable wildlife populations in more natural patterns of abundance and distribution, and help offset the impacts of recreational disturbance.

The FS considered an option for the proposed new developed campground to be located north of the Hermosa Park Road 578 in a large relatively flat location near Relay Creek. This was dismissed from detailed consideration because it was felt that it wouldn't solve the resource issues caused by dispersed camping at the trailhead; it would be too far away from the trailhead so people would continue to disperse camp near the trailhead.

Some alternatives were suggested, but not believed by the FS to be a large enough issue to merit inclusion as part of an alternative at this point in time. For example, one person wanted group size to be limited; another person wanted the "300 foot rule" to be eliminated in the entire watershed, and another wanted wheeled vehicles (bikes) to be prohibited in over-snow areas. There has been no indication that any of these issues has created unacceptable resource impacts to the degree that would warrant creation of regulations; therefore, these issues were not considered in detail.

One suggestion was made to allow motorized use of trails only on specific days of the week. The FS felt this would be too confusing and too difficult to enforce, so it was not considered in detail.

Some commenters wanted the FS to implement noise regulations for motorized vehicles. The FS understands this concern, and defers noise standards to the state of Colorado, which has passed a state law, effective in 2010 that requires most Off-Highway Vehicles (OHVs) to meet sound limits of 96 decibels (*CRS 25-12-110*).

2.0 & 3.0 ALTERNATIVES for FOREST PLAN AMENDMENT

This section contains descriptions of alternatives for amendment(s) to the Forest Plan. Amendments to suitability mapping and other mapping edits, and related acreage re-calculations would be inserted where appropriate into Forest Plan Chapter 2. New numbered Plan components (*Legislative Requirements, Desired Conditions, Objectives, Standards, and Guidelines*) would be inserted into the Forest Plan Chapter 3, at Section 3.28; these would apply to the Hermosa watershed only, in addition to all existing Forest Plan components and other guidance and descriptions given in the Forest Plan, unless specifically noted herein as being changed. This Forest Plan amendment would apply to all future projects and management actions within the Hermosa watershed.

Resource Direction is found in Chapter 2 of the Forest Plan and is organized by type of natural resource such as wildlife, water, or recreation. Area Direction is found in Chapter 3 of the Forest Plan and is organized by geographic area such as Ranger District, wilderness area, or other special area. Certain parts of both Forest Plan Chapters 2 and 3 need to be amended as a result of this Hermosa Plan; these amendments will apply only to the Hermosa watershed. Both Resource Direction and Area Direction changes to the Forest Plan are covered in this Hermosa Plan and will be inserted into the Forest Plan within a new "special area" section in Forest Plan Chapter 3, titled *3.28- Hermosa Watershed*. Sub-headings within Section 3.28 will follow the order of chapter and sub-headings found in the Forest Plan.

Because management actions are generally restricted in wilderness, the following direction would be applicable primarily to the SMA portion of the watershed, unless it is stated that it applies to the entire watershed or specifically to the wilderness.

Certain items in the Forest Plan were superseded by the legislation. For example, the designation of the wilderness and the SMA automatically changed Forest Plan categorizations such as management areas, Recreation Opportunity Spectrum, some suitability determinations, and acreages. These non-discretionary administrative changes are noted throughout this document and are shown in this EA as the current condition in Alternative 1. For this reason, however, certain items from the current Forest Plan are not reflected in this EA because they have been superseded, and including them here would be confusing. Therefore, Alternative 1 (Current Condition) may vary from the existing Forest Plan in some instances.

The majority of the proposed new Forest Plan components, below, would be included under all action alternatives (Alternatives 2-4). In order to avoid repetitious writing, the direction is listed once, and it is noted ***in this highlighted font*** which component applies to which alternative(s) when they are different. It is also noted if a plan component has been added or edited since the *Initial Draft Proposed Action* was released.

2.0 Resource Direction for Hermosa Creek Watershed

Ecological Framework and Conservation of Species

No new Plan components under any alternative - only mapping changes.

Figure 2.1.1 Protected Areas

Protected areas are defined in the Forest Plan as "lands especially dedicated to the protection and maintenance of biological diversity. They are mostly unaltered, undeveloped, and roadless lands..." which on the SJNF includes wilderness, recommended wilderness, wilderness study areas, roadless areas, research natural areas, and the Piedra Area. The Hermosa Creek legislation designated wilderness out of some previously recommended wilderness. Addition of the Hermosa Creek Wilderness as a protected area is a non-discretionary administrative change to comply with the legislation's designation of wilderness, and is included in all alternatives.

However, changes to the remaining recommended wilderness within the watershed are discretionary, and therefore change by alternative. More details and the rationale for the alternatives to recommended wilderness are discussed later in this document in the *Wilderness Area Direction* section; the protected area alternatives, immediately following below, match those wilderness alternatives.

The overall acreage of protected areas remains relatively equal across all alternatives because even though recommended wilderness acreages change by alternative, most of those acres would just be changing from one type of protected area (recommended wilderness) to another (roadless).

Alternative 1 Figure 2.1.1 is amended to add the Hermosa Creek Wilderness as a protected area. Recommended wilderness remaining outside of designated wilderness would remain as recommended wilderness. There would be approximately 108,000 acres of protected areas.

Alternatives 2 & 3 Figure 2.1.1 is amended to add the Hermosa Creek Wilderness as a protected area. All of the recommended wilderness in the Hermosa watershed would be removed from recommendation. Those portions recommended which are not within the watershed (Shark's Tooth area) are not considered in this analysis and remain as currently recommended. There would be approximately 102,000 acres of protected areas.

Alternative 4 Figure 2.1.1 is amended to add the Hermosa Creek Wilderness as a protected area. Portions of recommended wilderness north of Corral Creek would be removed from recommended wilderness. The ¼ mile-wide strip along the creek would remain as recommended wilderness. Those portions recommended which are not within the watershed (Shark's Tooth area) are not considered in this analysis and remain as currently recommended. There would be approximately 104,000 acres of protected areas.

FIGURE 2.1.1 Protected Areas *Alternative 1*

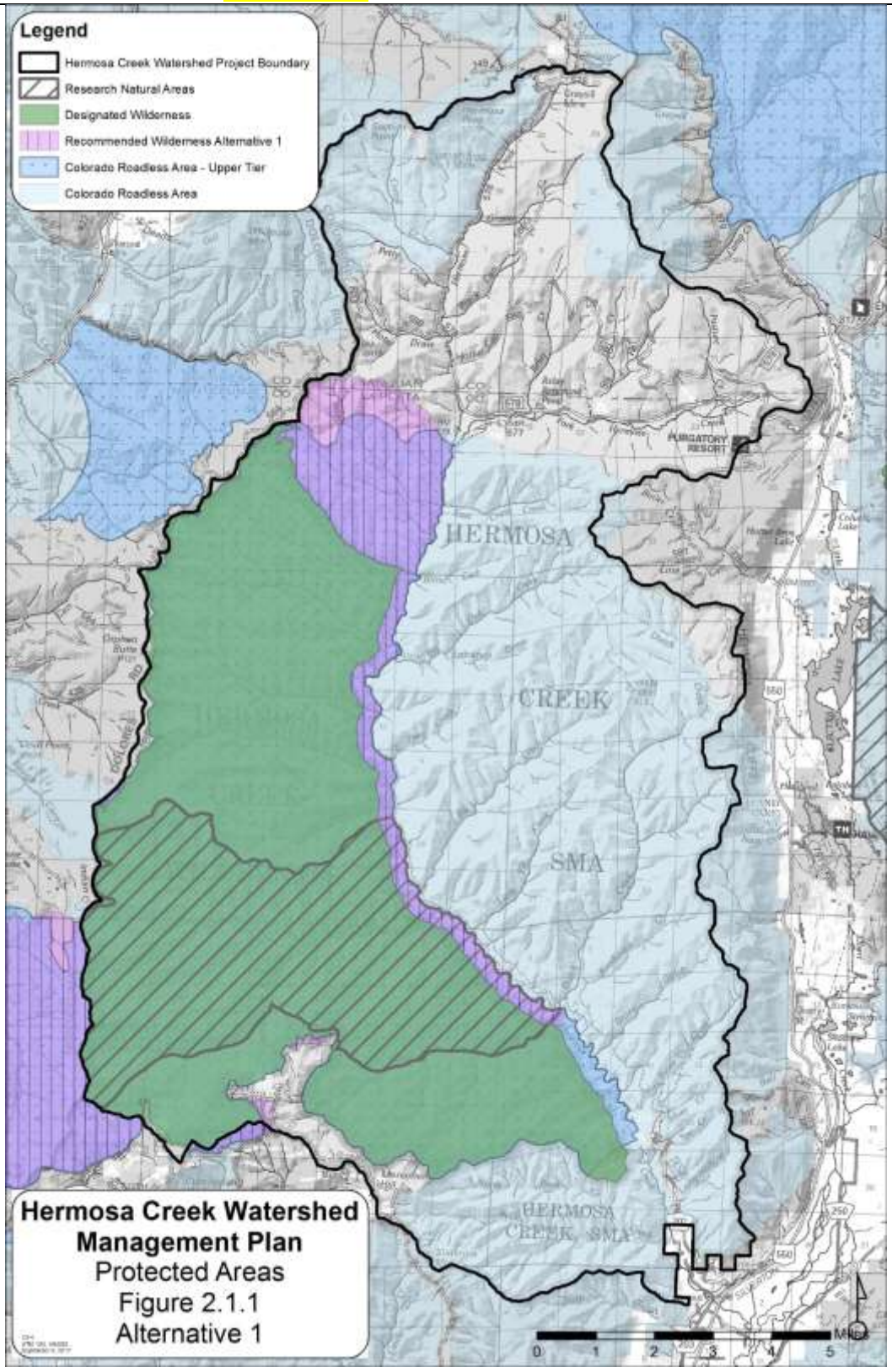


FIGURE 2.1.1 Protected Areas ***Alternatives 2 & 3***

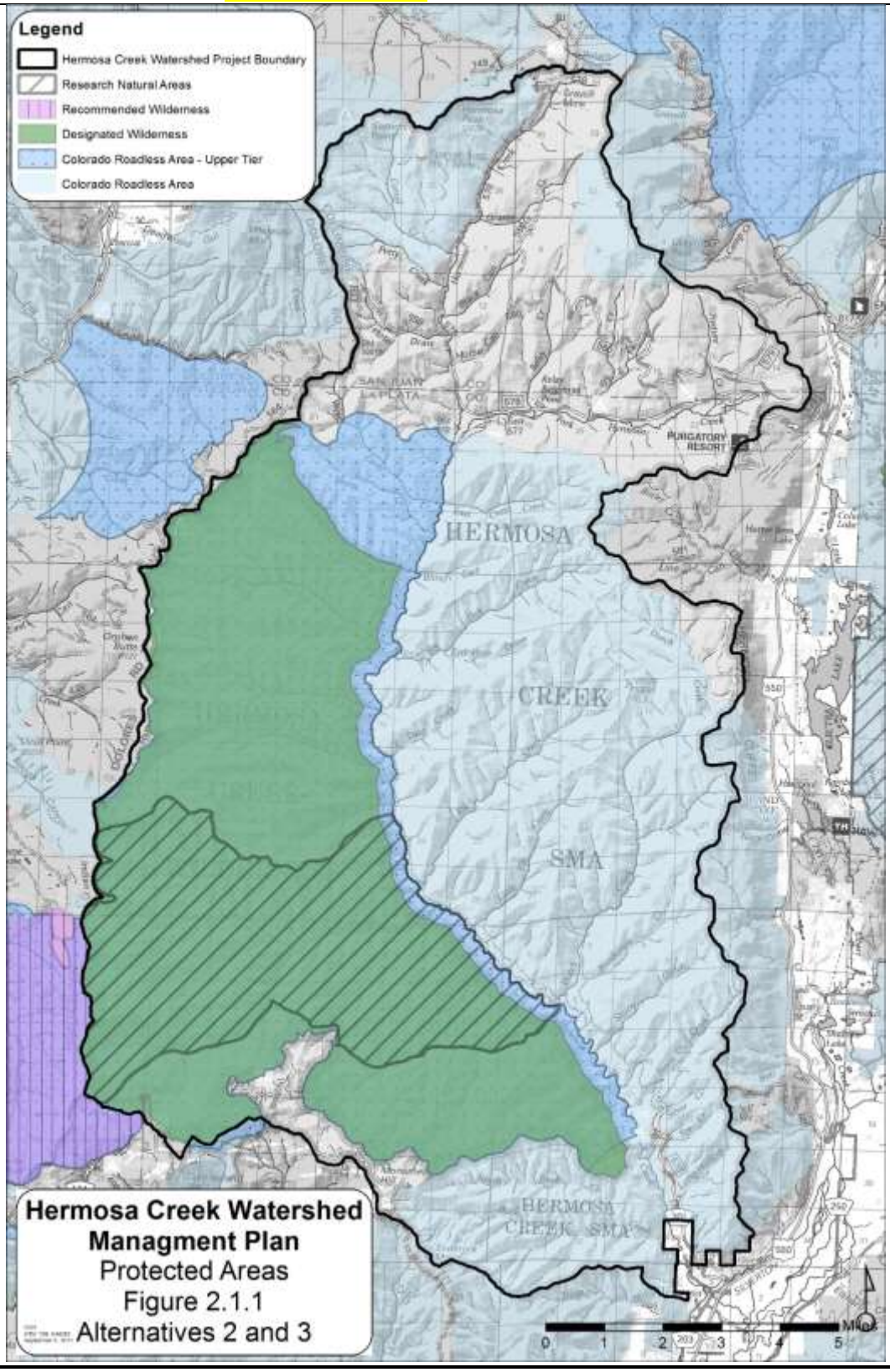
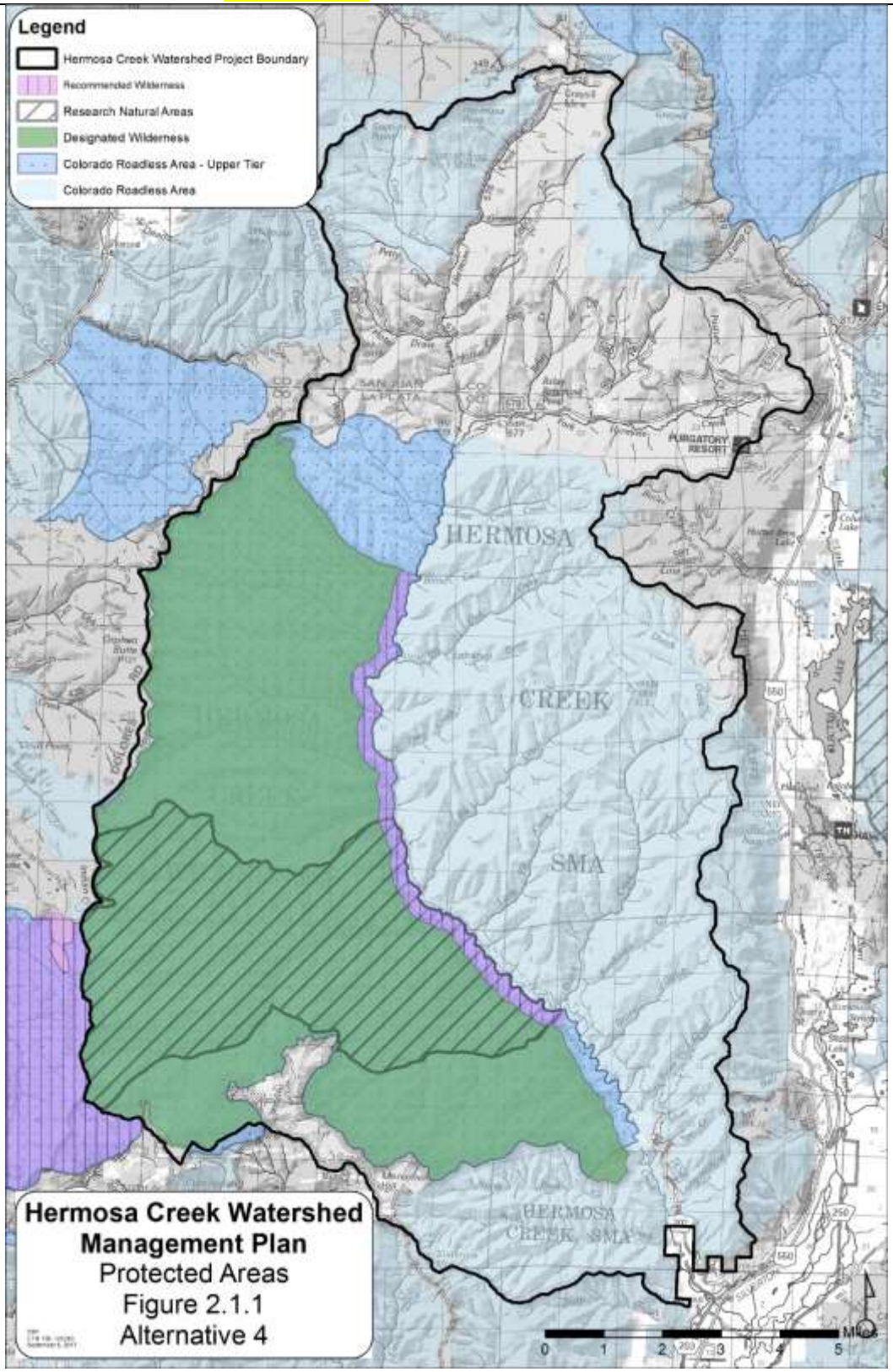


FIGURE 2.1.1 Protected Areas *Alternative 4*



Terrestrial Ecosystems and Plant Species

No new Plan components under Alternative 1.
Differences between Alternatives 2-4 are noted.

Desired Conditions

3.28.1 Native species diversity across the watershed is high, and dispersal of species is not inhibited so that species may move into new sites and take advantage of changing bioclimatic niches and growing conditions while maintaining proper ecological function.

3.28.2 Alpine and subalpine flowers continue to propagate, are pollinated and maintain viable populations within the watershed.

3.28.3 In areas where non-native lodgepole pine exists, spruce and fir are the dominant understory species and the forest is converting to a spruce-fir forest.

3.28.4 Rare plants ranked highly or extremely vulnerable to climate change as identified by the Colorado Natural Heritage Program are protected from non-climate stressors within the watershed. See current list below, subject to change.

TABLE 3.28.1. Rare Plants

Habitat	Scientific Name	Common Name	Global Status	State Status	Agency Sensitive
Alpine	Alsinanthe macrantha	house's sandwort	G3	S2S3	
Alpine	Castilleja puberula	downy indian paintbrush	G2G3	S2S3	
Alpine	Descurainia kenheilli	hell's tansy mustard	G1	S1	
Fens	Cryptogramma stelleri	slender rock brake	G5	S2	BLM
Fens	Erigeron kachinensis	kachina daisy	G2	S1	BLM
Fens	Mimulus eastwoodiae	Eastwood monkeyflower	G3G4	S2	BLM
Fens	Puccinella parishii	Parish's alkali grass	G2G3	S1	
Spruce-fir	Draba malpihiacea	Whitlow-grass	G1	S1	

3.28.5 ***Alternatives 2 & 3*** The landscape is a diverse mosaic of cover types with a diversity of habitat structural stages spread across the watershed. Mountain grasslands, mountain shrublands, and wetlands are widely distributed across the watershed providing a diversity of species. All development stages of forested ecosystems are well represented across the SMA and occur within the ranges identified in the following table. Within the SMA, this table replaces the Desired Conditions found in the Forest Plan Table 2.2.1.

TABLE 3.28.2. Vegetation Desired Conditions *Alternatives 2 & 3*

Vegetation Local Type	% Habitat Structural Stage Desired Condition in the SMA		
	1 and 2, 3	4A	4B, 4C
Aspen - TAA	20-40%	10-20%	40-70%
Aspen with mixed conifer - TAA_SW	20-40%	10-20%	40-70%
Spruce-Fir - TSF	10-20%	10-20%	60-80%
Cool-moist Mixed Conifer - TMC_CM	10-20%	10-20%	60-80%
Warm-dry Mixed Conifer - TMC_WD	10-20%	30-50%	30-60%
Ponderosa Pine - PP	10-20%	35-55%	25-45%

3.28.5 ***Alternative 4*** The landscape is a diverse mosaic of cover types with a diversity of habitat structural stages spread across the watershed. Mountain grasslands, mountain shrublands, and wetlands are widely distributed across the watershed providing a diversity of species. All development stages of forested ecosystems are well represented across the SMA. Forest Plan Table 2.2.1 does not apply to the SMA.

Objectives

3.28.6 ***Alternatives 2 & 3*** To maintain a diverse and resilient forest within the aspen vegetation type, increase the amount of young and mature open stands by 20% of the vegetation type (approx. 2,000-3,000 acres) through prescribed burning and timber harvest over the next 15 years.

3.28.7 ***Alternatives 2 & 3*** Monitor and map the changes occurring in the spruce-fir forest within the next three years and practice adaptive management to work toward the desired condition. Management tactics may include timber harvest, fire or mechanical or chemical treatments to enhance forest resiliency. (Spruce-fir forest habitat structural stages within the Hermosa SMA are currently near desired conditions, however insects and diseases are active in the landscape and may cause a large scale changes in the near future.)

3.28.8 ***Alternatives 2 & 3*** To maintain a diverse and resilient cool-moist mixed conifer forest, using a combination of fire and timber harvest, create regeneration areas across approximately 10% of the cool-moist forest (approx. 500-600 acres).

3.28.9 ***Alternatives 2 & 3*** To maintain a diverse and resilient warm-dry mixed conifer forest, using a combination of fire and timber harvest, thin approximately 35% (approx. 1,300 acres of the warm-dry forest to favor drought tolerant species such as Douglas fir and ponderosa pine.

3.28.10 ***Alternatives 2 & 3*** To maintain a diverse and resilient ponderosa pine forest, using a combination of fire and timber harvest, create opportunities for natural regeneration across approximately 5% of the ponderosa pine forest (approx. 100-200 acres).

3.28.11 Under-plant approximately 100-200 acres of lodgepole pine plantations with native Engelmann spruce, Douglas fir or other endemic tree species.

3.28.12 Inventory alpine and fen ecosystems, evaluate ecosystem health and diversity and identify rare and vulnerable plants for seed collection.

3.28.13 Within five years, create and maintain a seed bank of native tree, shrub and plant seed specific to the Hermosa watershed to be used in restoration and reforestation.

3.28.14 Within five years, collect seed within the watershed from rare plants moderately to extremely vulnerable to climate change (*Handwerk 2014*).

Guidelines

3.28.15 During any agency actions, consider whether the bioclimatic niche for pre-existing species has changed, and practice active adaptive management to plant species suitable for a new and changing climate.

3.28.16 In the stands that are dying from insect, disease and fire, healthy young trees should be maintained for a future stocked forest.

3.28.17 Roads identified for decommissioning or restoration should be restored to improve soil condition. Improvements could include increasing soil organic material, carbon, and nutrients (e.g. bio-char or revegetation).

Riparian Area and Wetland Ecosystems

No new Plan components under Alternative 1.
Differences between Alternatives 2-4 are noted.

Desired Conditions

3.28.18 The East Fork of the Hermosa and the reach of Hermosa Creek just above the East Fork confluence, and their riparian corridors, are in a 'Robust' stream health category, as defined in the Watershed Conservation Practices Handbook.

3.28.19 Cool summer stream temperatures are maintained by shade from native riparian hydrophytic species of trees and shrubs and by maintenance of stream channel morphology (pools, riffles, small width to depth ratio, etc.).

Objectives

3.28.20 Every ten years, restore at least five degraded riparian sites, five wetland acres, or five acres contributing sediment to the creek system.

3.28.21 ***New*** Move the watershed condition classification in the East Fork Hermosa to "good" through the completion of essential projects identified in the Watershed Restoration Action Plan (*SJNF 2012*) within 10 years.

Guidelines

3.28.22 Over-snow activities authorized under permit should not cause snow compaction in fens to the extent that soil temperatures and depth of frost penetration are altered in these fragile ecosystems.

3.28.23 ***Alternative 4*** After maintenance and use of Maintenance Level 1 roads for administrative purposes, drainage crossings and intercepted springs should be restored, considering such factors as natural stream dimensions, natural flow patterns, and vegetation.

Aquatic Ecosystems and Fisheries

No new Plan components under Alternative 1.
Alternatives 2-4 include the following.

Desired Conditions

3.28.24 Natural and manmade barriers to upstream fish migration adequately protect Colorado River cutthroat trout (CRCT) populations while allowing for stream reaches large enough to support long term population viability.

3.28.25 Manmade barriers to upstream fish migration within CRCT habitat are maintained to ensure effectiveness.

3.28.26 Free migration of aquatic organisms is not limited by roads, trails or other infrastructure across the watershed, except under circumstances where non-native fish species are excluded to the benefit of native fish species.

Objectives

3.28.27 Replace two road culverts identified as fish migration barriers in Forest Road 578 to reconnect fragmented habitat in Sig and Relay Creeks, within ten years.

3.28.28 Construct a barrier to upstream fish migration below the confluence of Hermosa Creek and East Fork Hermosa Creek to fully establish the CRCT meta-population within five years.

3.28.29 Implement four stream habitat improvement projects to improve over-wintering habitat and limit sedimentation to streams within ten years.

3.28.30 ***Wording edited*** Install interpretive signage where appropriate to educate fishermen of the CRCT re-introduction program, within five years. Include wording about concerns and risks to CRCT populations and proper pathogen risk preventative measures.

Guidelines

3.28.31 Road and trail stream crossings within the watershed should be designed to allow for fish passage during all flow regimes.

Invasive Species

No new Plan components under Alternative 1
Alternatives 2-4 include the following

Desired Conditions

3.28.32 The Forest Service is an active participant in a Hermosa Cooperative Weed Management Partnership.

Objectives

3.28.33 Annually treat 10% of known invasive weed populations in the watershed.

Timber and Other Forest Products

Non-discretionary legislative requirements apply to all alternatives.

Legislative Requirements

3.28.34 Projects undertaken for the purpose of harvesting commercial timber are prohibited, other than activities relating to the harvest of merchantable products that are byproducts of activities conducted for ecological restoration or to further the purposes of the legislation.

No new Plan components under Alternative 1.
Differences between Alternatives 2-4 are noted.

Desired Conditions

3.28.35 Opportunities for personal use collection of forest products (such as firewood, stays, mushrooms and medicinal plants) are provided in such a manner that collection does not interfere with ecosystem function or resiliency.

Objectives

3.28.36 ***Alternatives 2 & 3*** Within 10 years after any large-scale mortality event, conduct a post disturbance assessment to evaluate areas of severe mortality and to identify and reforest portions that are accessible, have severe mortality and are not regenerating naturally within the SMA.

3.28.37 ***Alternatives 2 & 3*** Within five years, reforest 90% of identified old timber sales to achieve full stocking.

Guidelines

3.28.38 In the event of a large-scale disturbance, timber salvage may occur subject to all applicable laws and regulations, and in a manner consistent with the purposes of the legislation.

3.28.39 Over-snow activities authorized under permit should not cause tree-top damage in plantations to the extent that reforestation success is impaired.

Suitability

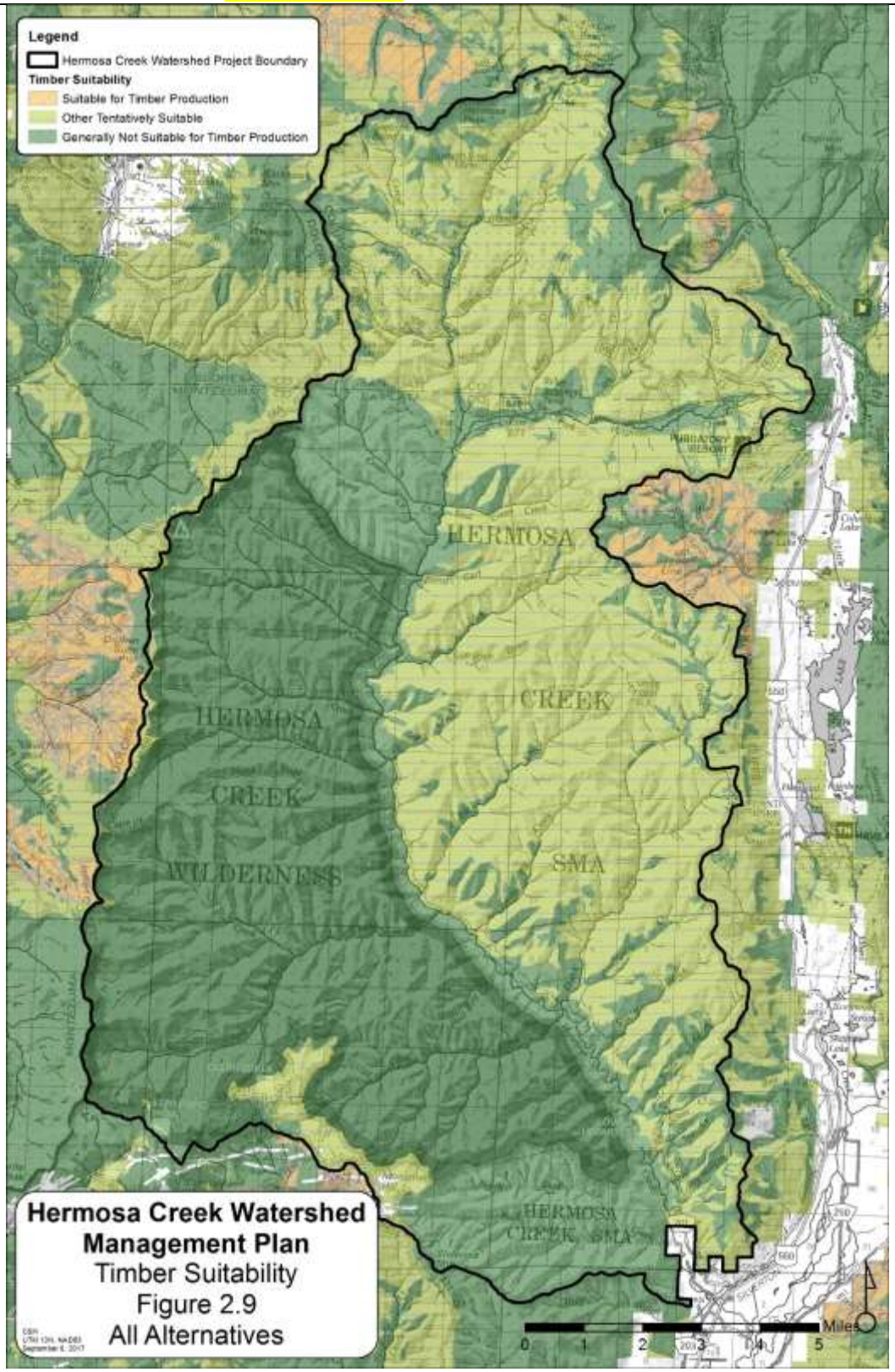
All Alternatives

Figure 2.9 Timber Suitability in the Forest Plan is amended to reflect that all "lands suitable for timber production" within the watershed are changed to "other tentatively suitable lands where timber harvest may occur." This is a non-discretionary administrative change necessary to comply with the legislation.

The watershed does not meet the Forest Plan definition for "unsuitable" timber lands, which are areas where site conditions preclude tree cover, irreversible resource damage could occur (e.g. steep or unstable slopes), adequate restocking is not assured, or harvest is prohibited by statute or regulation. None of these conditions apply; the legislation does not prohibit timber harvest.

The watershed also does not meet the definition for "lands suitable for timber production", meaning harvest activities for strictly commercial purposes, because this is prohibited by the legislation. However, the legislation states that vegetation management projects within the SMA may occur in a manner consistent with the purposes of the legislation or for ecological restoration.

FIGURE 2.9 Timber Suitability ***All Alternatives***



Insects and Disease

No new Plan components under Alternative 1
Alternatives 2-4 include the following

Desired Conditions

3.28.40 Insects and diseases are endemic across the watershed, adding to the diversity of the landscape. In areas of mature forest mortality, natural regeneration is healthy and abundant.

3.28.41 Indices for beetle epidemics are low to moderate across the watershed in at least 50% of the mature conifer forest.

Guidelines

3.28.42 Insect and disease treatments may include the use of biotic controls, pheromones, chemicals, microbial organisms, mycorrhizal fungi, fire, trap trees, slash treatment or other vegetation manipulation, as long as the activity maintains or restores forest health and desired conditions.

Fire and Fuels Management

No new Plan components under Alternative 1
Differences between Alternatives 2-4 are noted

Desired Conditions

3.28.43 Managed natural fire is encouraged within the entire watershed, except in identified Wildland-Urban Interface.

3.28.44 Prescribed fire is used as a management tool throughout the SMA.

Objectives

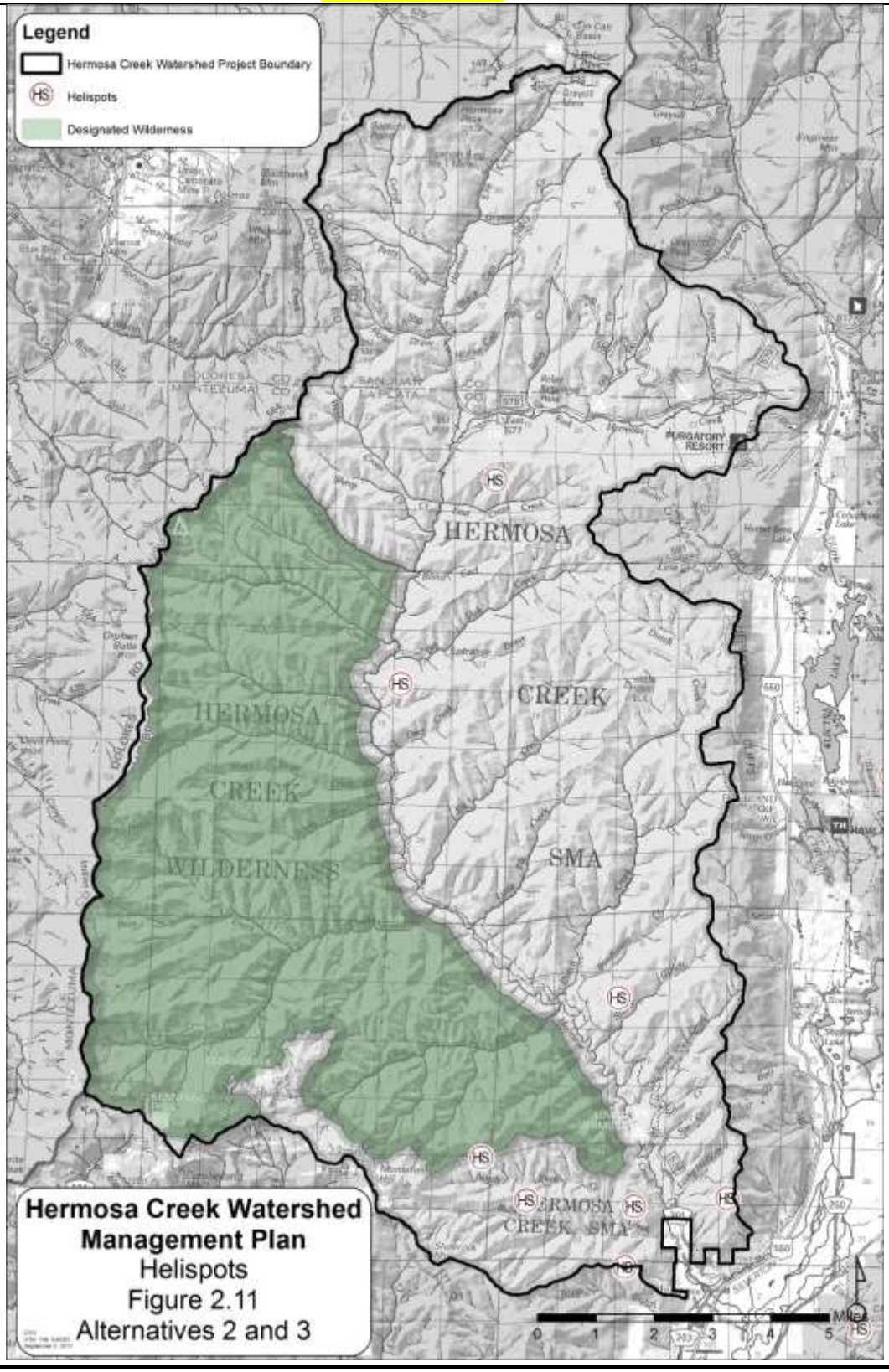
3.28.45 ***Alternatives 2 & 3*** Maintain helispots in the SMA by keeping them cleared every 5-10 years. See Figure 2.11

Guidelines

3.28.46 Managed natural fire and prescribed fire should be managed to maintain identified plantations at minimum stocking levels, when possible.

3.28.47 Minimize physical control line construction within the watershed.

FIGURE 2.11. Helispots within the SMA. ***Alternatives 2-3***



Access and Travel Management

Non-discretionary legislative requirements apply to all alternatives.

Legislative Requirements

3.28.48 The use of motorized or mechanized vehicles in the SMA shall be permitted only on roads and trails designated by the Forest Service for use by those vehicles.

3.28.49 FS shall authorize the use of snowmobiles and other over-snow vehicles within the SMA when there is adequate snow coverage, and subject to terms and conditions the Forest Service may require.

3.28.50 New permanent or temporary road construction or the renovation of existing unauthorized roads are prohibited in the East Hermosa Area, except as allowed by the Colorado Roadless Rule.

No new Plan components under Alternative 1.
Differences between Alternatives 2-4 are noted.

Desired Conditions

3.28.51 Hermosa Creek Trail is managed to accommodate multiple user types and minimize conflicts.

3.28.52 Motorized trail use is provided for within the SMA.

3.28.53 Mechanized trail use is provided for within the SMA.

3.28.54 ***New*** Under agreement and supervision of the Forest Service, trails are maintained in cooperation with partners, such as user groups, special use permit holders, and volunteers.

Objectives

3.28.55 ***New*** Install educational signage where appropriate to inform users of site-specific trail designations for vehicle usage and seasonal closure dates; and to educate users about share-the-trail, leave no trace, tread lightly, and similar behaviors, within three years and as needed thereafter.

Standards

3.28.56 Over-ground motorized and mechanized travel shall be limited to designated Forest system roads and trails; no cross-county travel is allowed. (Vehicles on user-created, unauthorized non-system, or closed routes will be considered cross-country travel.)

3.28.57 ***Wording edited*** Over-ground motorized and mechanized travel shall have seasonal dates defined.

3.28.58 Over-snow motorized and mechanized travel shall be limited to designated Forest system roads, trails, or areas.

Guidelines

3.28.59 ***Alternative 2*** Accomplish a 1:1 no net gain of over-ground trail miles within the watershed when adding new trails to the system.

3.28.59 ***Alternative 3*** would not include a guideline regarding net trail miles

3.28.59 ***Alternative 4*** Accomplish a 2:1 net loss of over-ground trail miles within the watershed when adding new trails to the system.

3.28.60 After use of Maintenance Level 1 roads for administrative use, they should be effectively revegetated and closed to prevent unauthorized travel.

Suitability

Figure 2.13.1l Over-Ground Motorized Travel Suitability

Over-Ground Motorized Travel Suitable areas are defined in the Forest Plan as those having an existing developed road and/or motorized trail system that serves the recreation and resource needs of the area. Suitability designations do not make decisions about particular roads, trails, or areas, but rather, provide general guidance on how an area should be managed.

Alternative 1 Figure 2.13.11 would not be amended. The area in the vicinity of Corral Draw would remain unsuitable for over-ground motorized travel. This alternative is included because this area is recommended wilderness in Alternative 1, which would make it unsuitable for motorized travel.

Alternatives 2-4 Figure 2.13.11would be amended in the vicinity of Corral Draw to change from unsuitable to suitable for over-ground motorized travel. This is to match the adjacent areas and to accommodate the motorized trail that has existed in Corral Draw for many years.

Figure 2.13.2 Over-Snow Motorized Travel Suitability

Over-Snow Motorized Travel Suitability designations do not make decisions about particular roads, trails, or areas, but rather, provide general guidance on how an area should be managed. Criteria that were used to determine over-snow suitability include: big game winter concentration areas, access for non-motorized users that could lead to user-group conflicts, sufficient snow cover in most years, and historical use patterns including permitted commercial use. Boundary mapping was made to follow topographic features on the ground that are apparent in the wintertime, such as drainage bottoms or ridgelines. Smaller-scale topography within larger suitable areas (slope, cliffs, etc.) was not used as a criteria because it is impossible to delineate or enforce on the ground. Recognition was given that vehicle technology is evolving and areas once considered inaccessible are becoming accessible. Over-snow use and grooming that are regulated under permit may have restrictions within the suitable area. Additionally, there are existing special use permits allowing motorized use in these areas.

Alternative 1 Figure 2.13.2 is not changed from the current Forest Plan.

Alternatives 2 & 3 Figure 2.13.2 would be amended to include areas in the Cascade Divide/Graysill vicinities that have been used by commercial and private snowmobile groups for many years. As equipment capabilities are increasing, and demand is growing, there are no criteria that should preclude motorized users from accessing more of this portion of the watershed as recognized and proposed in these two alternatives.

Alternative 4 Figure 2.13.2 would be amended to only include suitability where there is current permitted use in order to reduce overall areas of motorized disturbance and snow compaction.

FIGURE 2.13.1 Over-Ground Motorized Travel Suitability ***Alternative 1***

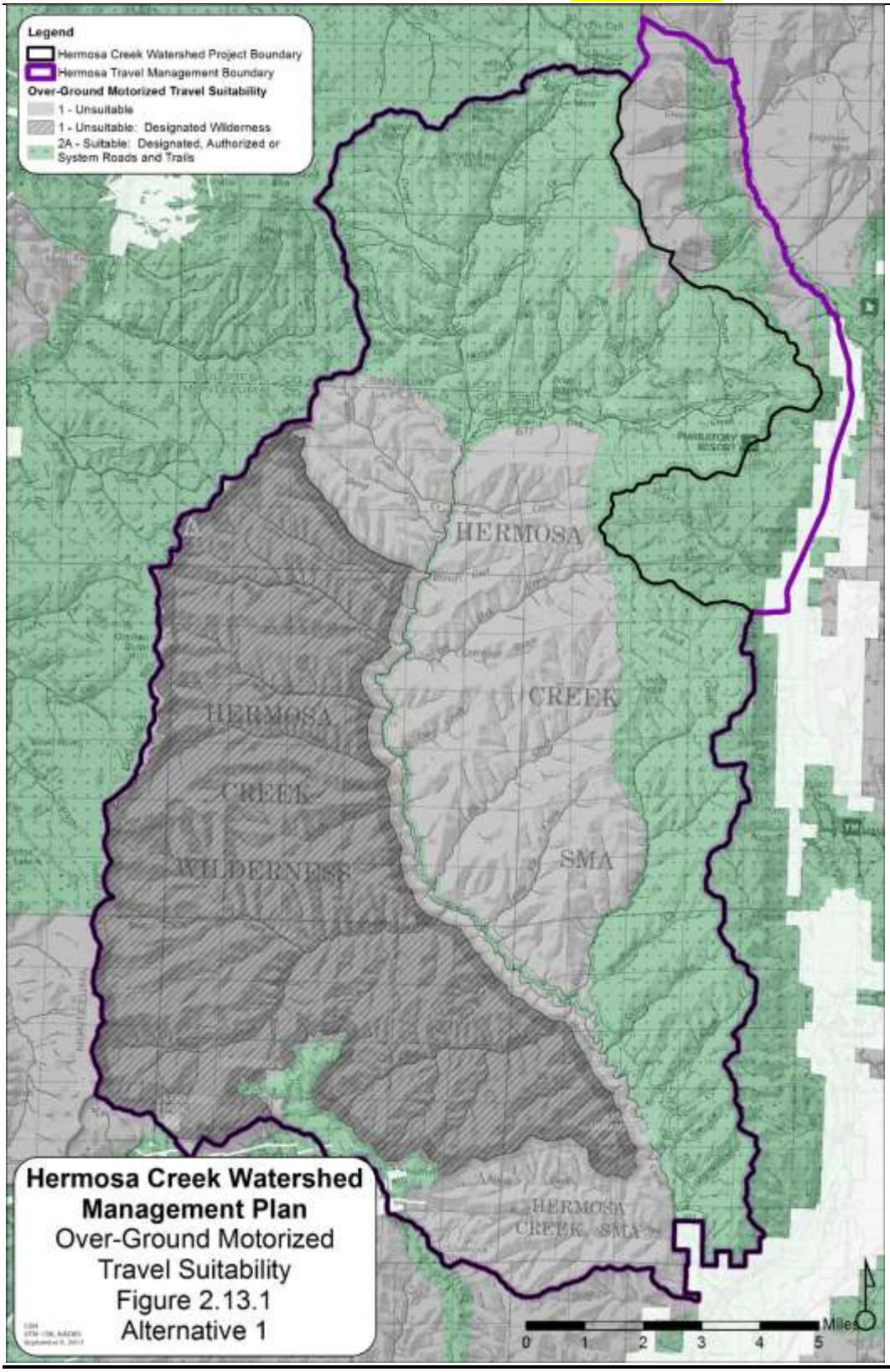


FIGURE 2.13.1 Over-Ground Motorized Travel Suitability ***Alternatives 2-4***

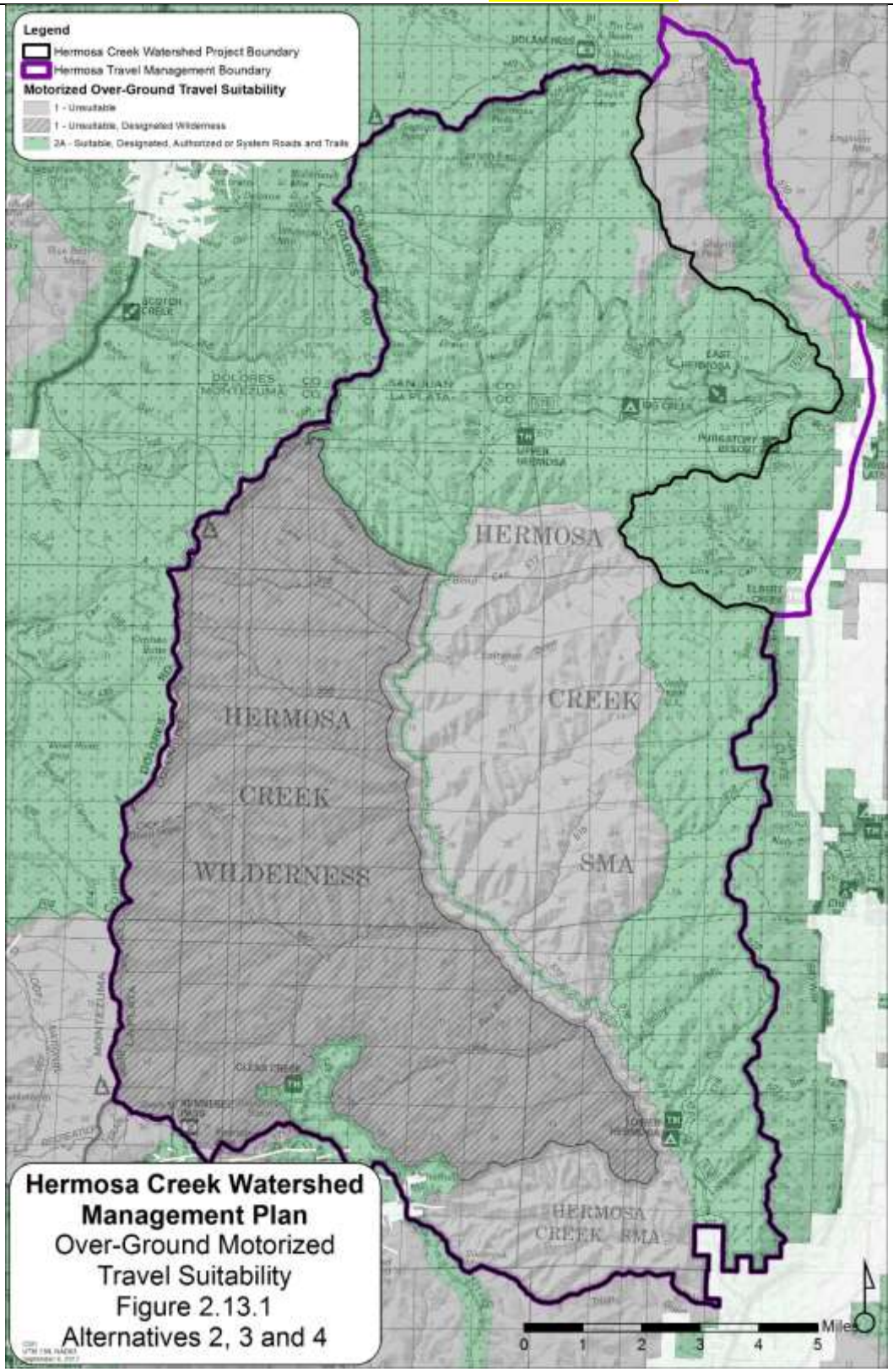


FIGURE 2.13.2 Over-Snow Motorized Travel Suitability *Alternative 1*

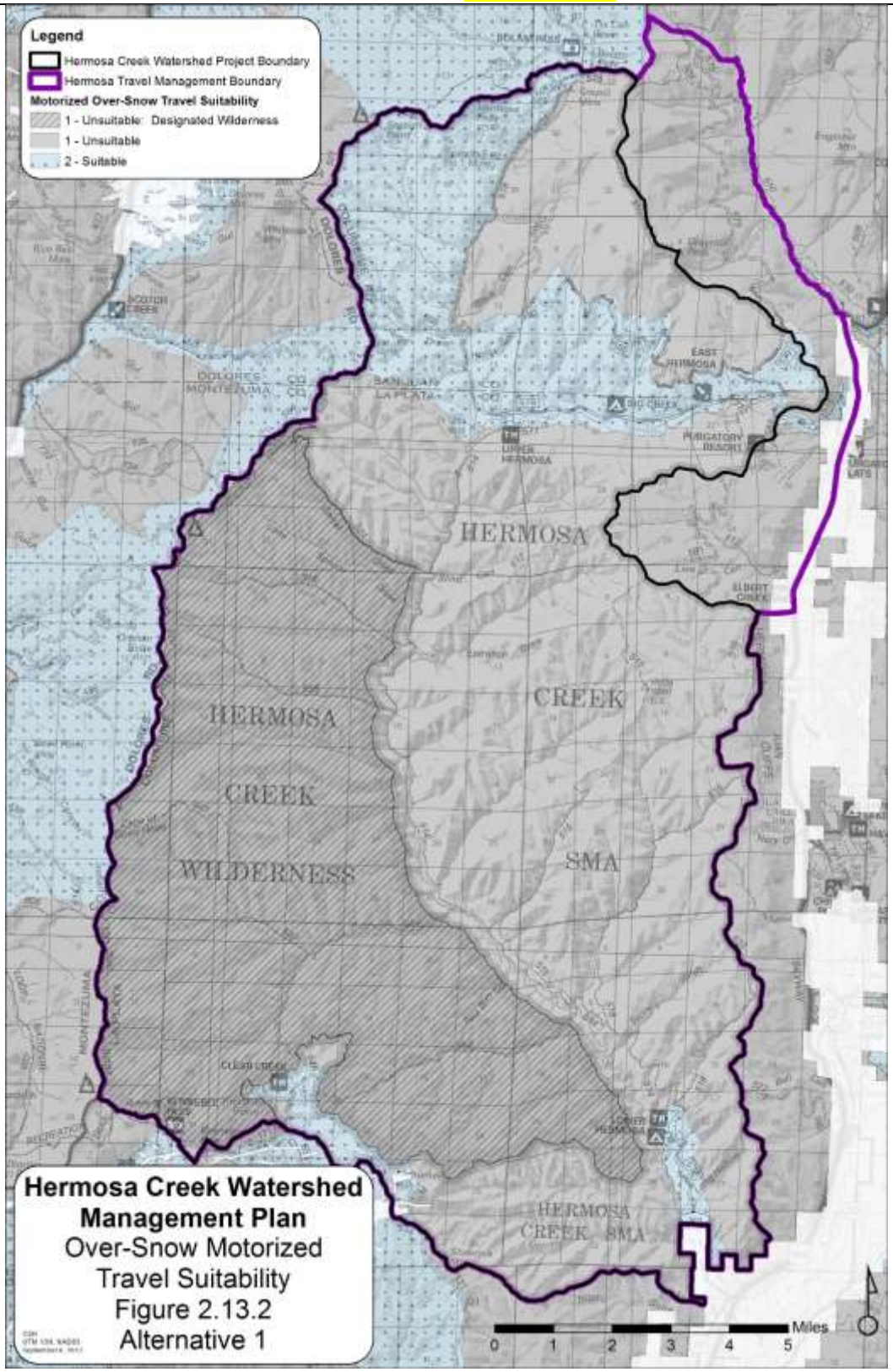


FIGURE 2.13.2 Over-Snow Motorized Travel Suitability *Alternatives 2 & 3*

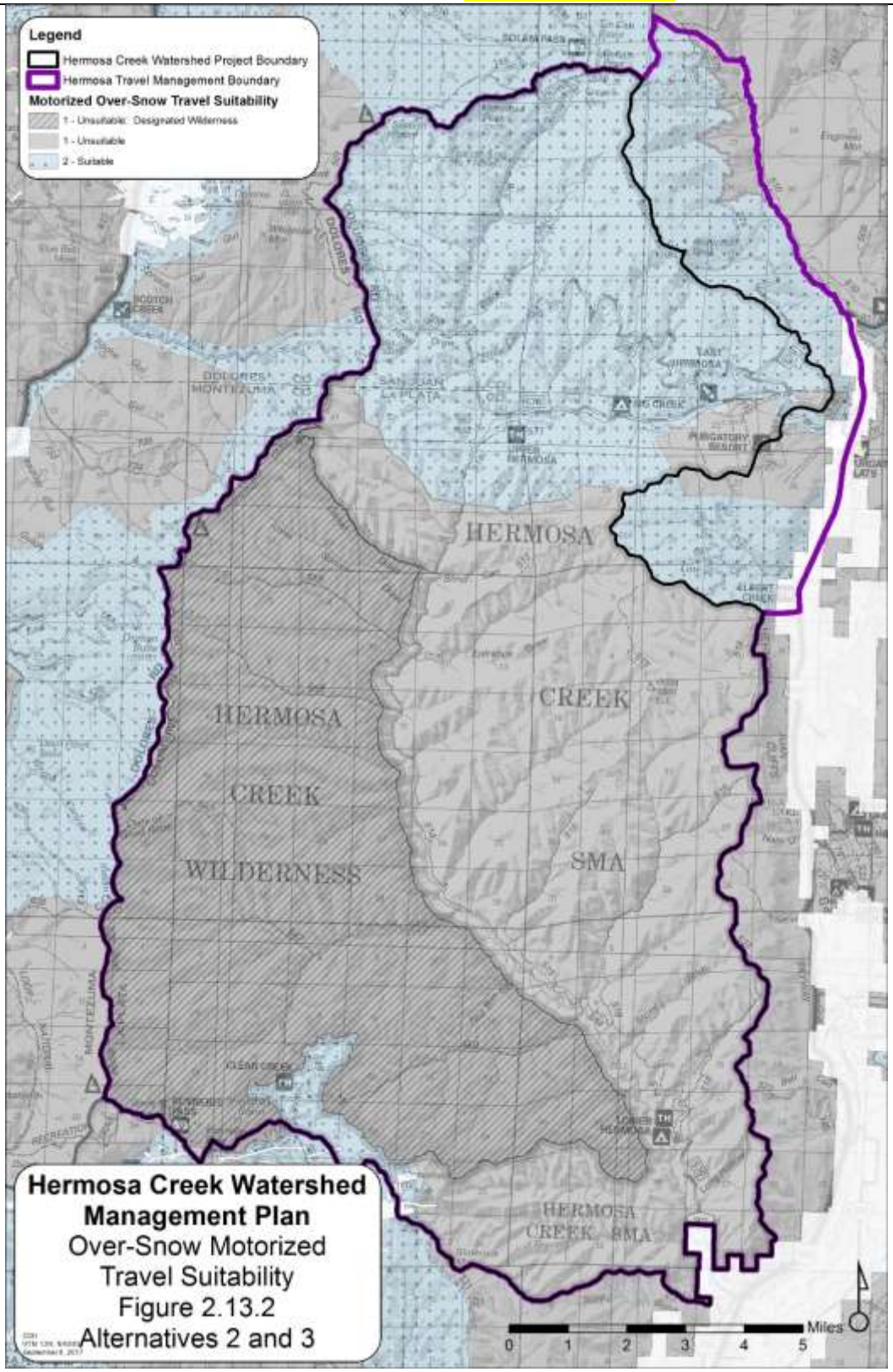
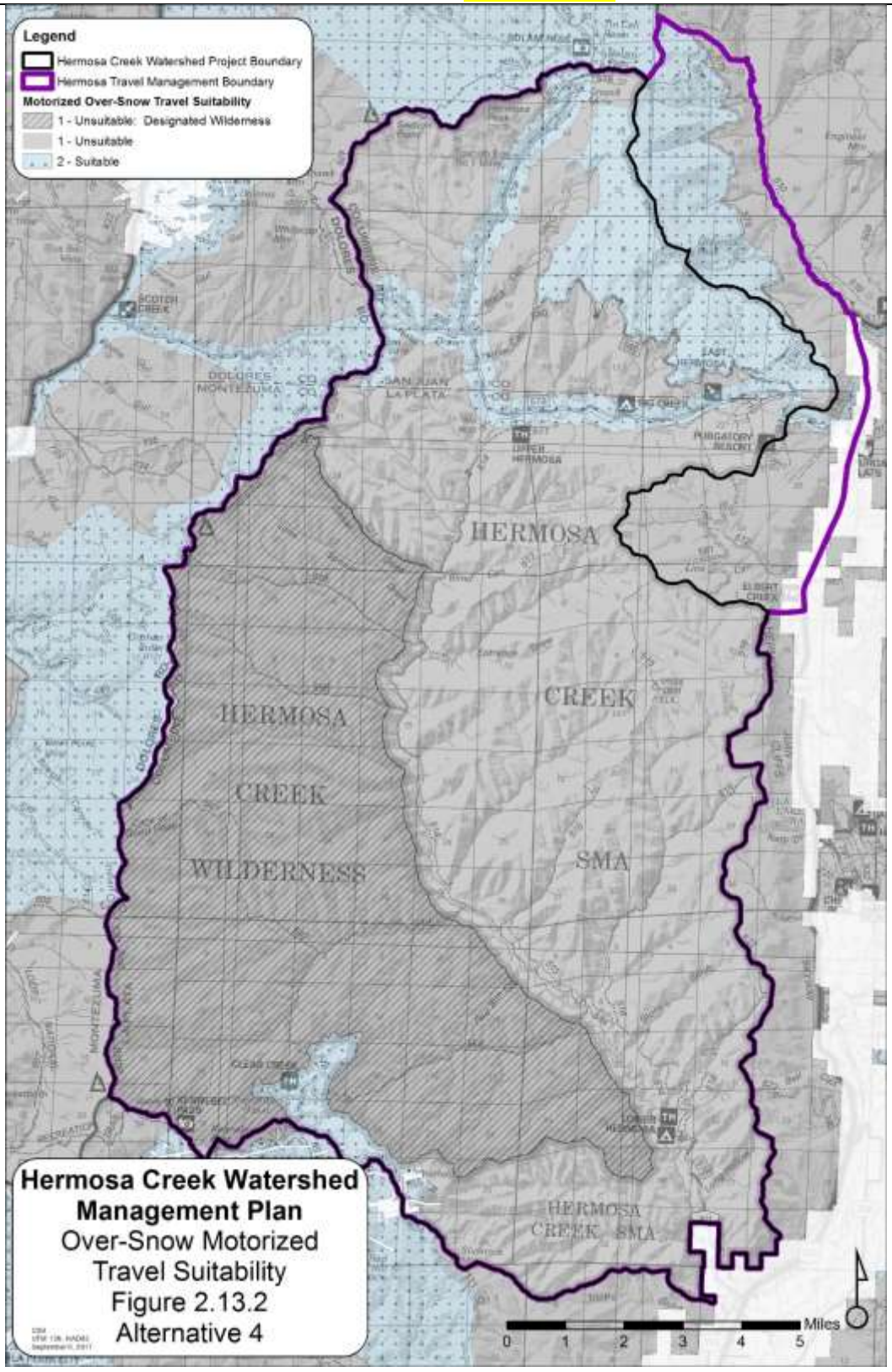


FIGURE 2.13.2 Over-Snow Motorized Travel Suitability *Alternative 4*



Livestock and Rangeland Management

Non-discretionary legislative requirements apply to all alternatives.

Legislative Requirements

3.28.61 Permit grazing within the SMA, if established before the date of the legislation, subject to all applicable laws, regulations, and Executive Orders.

No new Plan components under Alternative 1.
Differences between Alternatives 2-4 are noted.

Desired Conditions

3.28.62 Conflicts with livestock in developed recreation sites are minimized.

Guidelines

3.28.63 ***Alternatives 2 & 4*** Adaptive management strategies for grazing (such as herding, temporary avoidance areas, or temporary fencing) should be implemented when the stream health category is either "at risk" or "diminished" (*WCPH*) and where streambank and riparian restoration is occurring.

3.28.63 ***Alternative 3*** Adaptive management strategies for grazing (such as herding, temporary avoidance areas, or temporary fencing) should be implemented where streambank and riparian restoration is occurring.

3.28.64 Fencing should blend with the natural and cultural setting and be wildlife friendly.

Recreation

No new Plan components under Alternative 1
Alternatives 2-4 include the following

Desired Conditions

3.28.65 Residential use (taking possession of, occupying, or otherwise using National Forest System lands for residential purposes without a permit or as otherwise authorized by Federal law or regulations) does not occur within the watershed.

3.28.66 All major developed campground facilities are managed by a Forest Service permitted concessionaire.

3.28.67 Dispersed camping does not impact meadows, wetlands, or streambanks within the watershed.

3.28.68 Developed recreation sites are provided to the extent possible to meet demand, considering available Forest Service resources.

Standards

3.28.69 New developed recreation sites must not be planned or developed in the 100-year flood plain.

Guidelines

3.28.70 Control unacceptable or expanding impacts from dispersed camping through education and engineering features first. Restrict dispersed camping to designated sites if impacts cannot be controlled by engineering features.

3.28.71 Fence newly developed recreation sites as part of new construction where grazing is permitted.

Recreation Opportunity Spectrum

Figure 2.14.2 Summer ROS in the Forest Plan is amended in ***All Alternatives*** to align the new wilderness with the "wilderness primitive" class. This is a non-discretionary administrative change to match the legislative designation of wilderness.

Figure 2.14.3 Winter ROS

Alternative 1 Figure 2.14.3 in the Forest Plan is amended to align the new wilderness with the "wilderness primitive" class. This is a non-discretionary administrative change to match the legislative designation of wilderness.

Alternatives 2 & 3 Figure 2.14.3 is amended to align the new wilderness with the "wilderness primitive" class. This is a non-discretionary administrative change to match the legislative designation of wilderness. Additionally, the figure is amended to change the class to "semi-primitive motorized" in the Elbert Creek drainage and near Greyrock Peak to match the proposed motorized over-snow suitability in those two alternatives, which is a discretionary action.

Alternative 4 Figure 2.14.3 is amended to align the new wilderness with the "wilderness primitive" class. This is a non-discretionary administrative change to match the legislative designation of wilderness. Additionally, the figure is amended to change the class to "semi-primitive motorized" in the Elbert Creek drainage and near Greyrock Peak to match the proposed motorized over-snow suitability in those two alternatives, which is a discretionary action.

Scenery and Visual Resources

No new Plan components under any alternative – only mapping changes.

Figure 2.15 Scenic Integrity Objective

Alternative 1 Figure 2.15 would not be amended. This would retain the Very High objective for all the wilderness and recommended wilderness in this alternative.

Alternatives 2 & 3 Figure 2.15 would be amended to remove the Very High objective from all but the designated wilderness. This is because all recommended wilderness is removed in these alternatives. Changes to the recommended wilderness are discretionary and are discussed below in the *Wilderness Area Direction* section.

Alternative 4 Figure 2.15 would be amended to make the Very High objective match the wilderness boundary and the recommended wilderness boundary of this alternative, which includes the corridor along Hermosa Creek.

FIGURE 2.14.2 Summer ROS *All Alternatives*

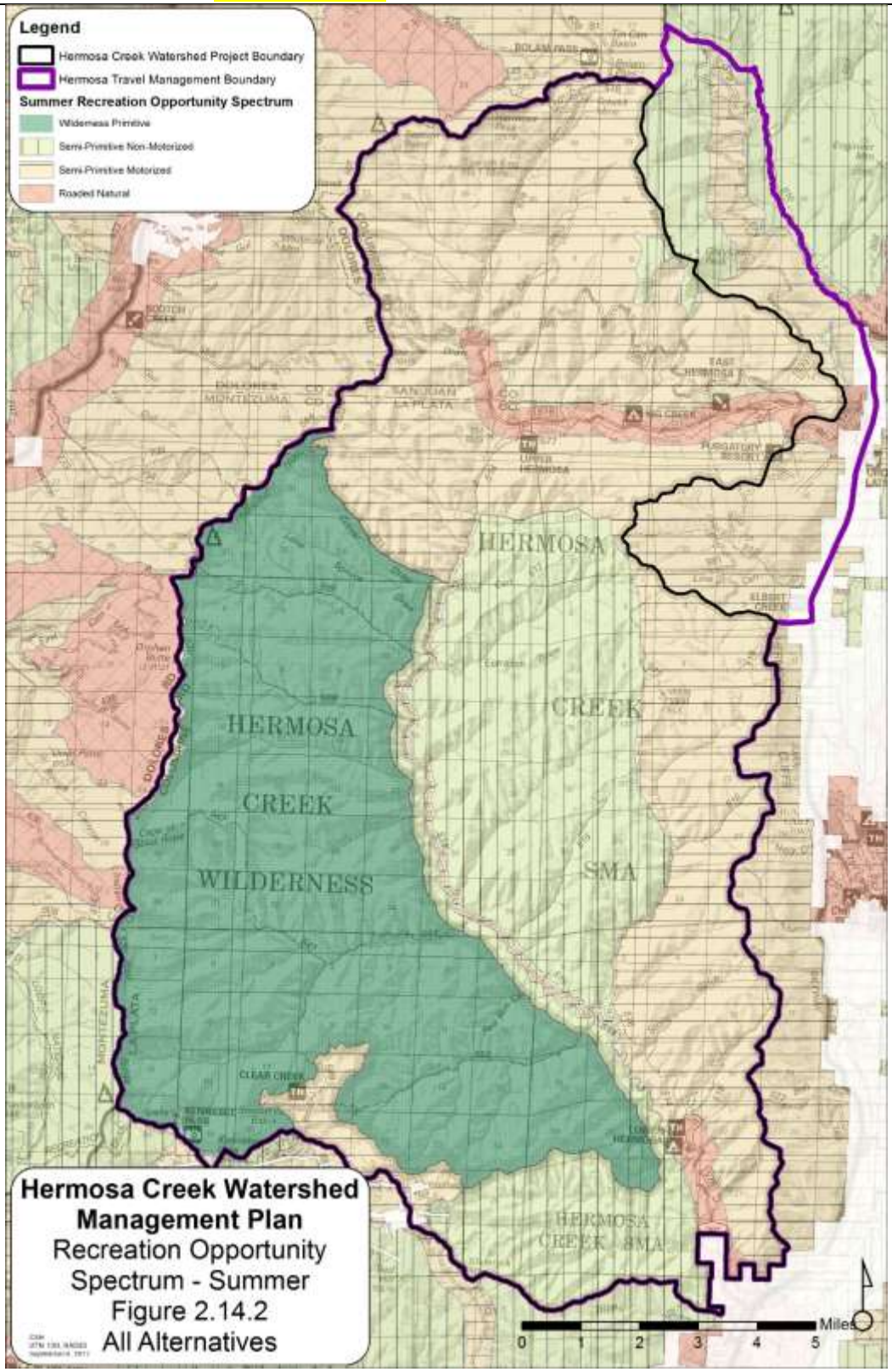


FIGURE 2.14.3 Winter ROS *Alternative 1*

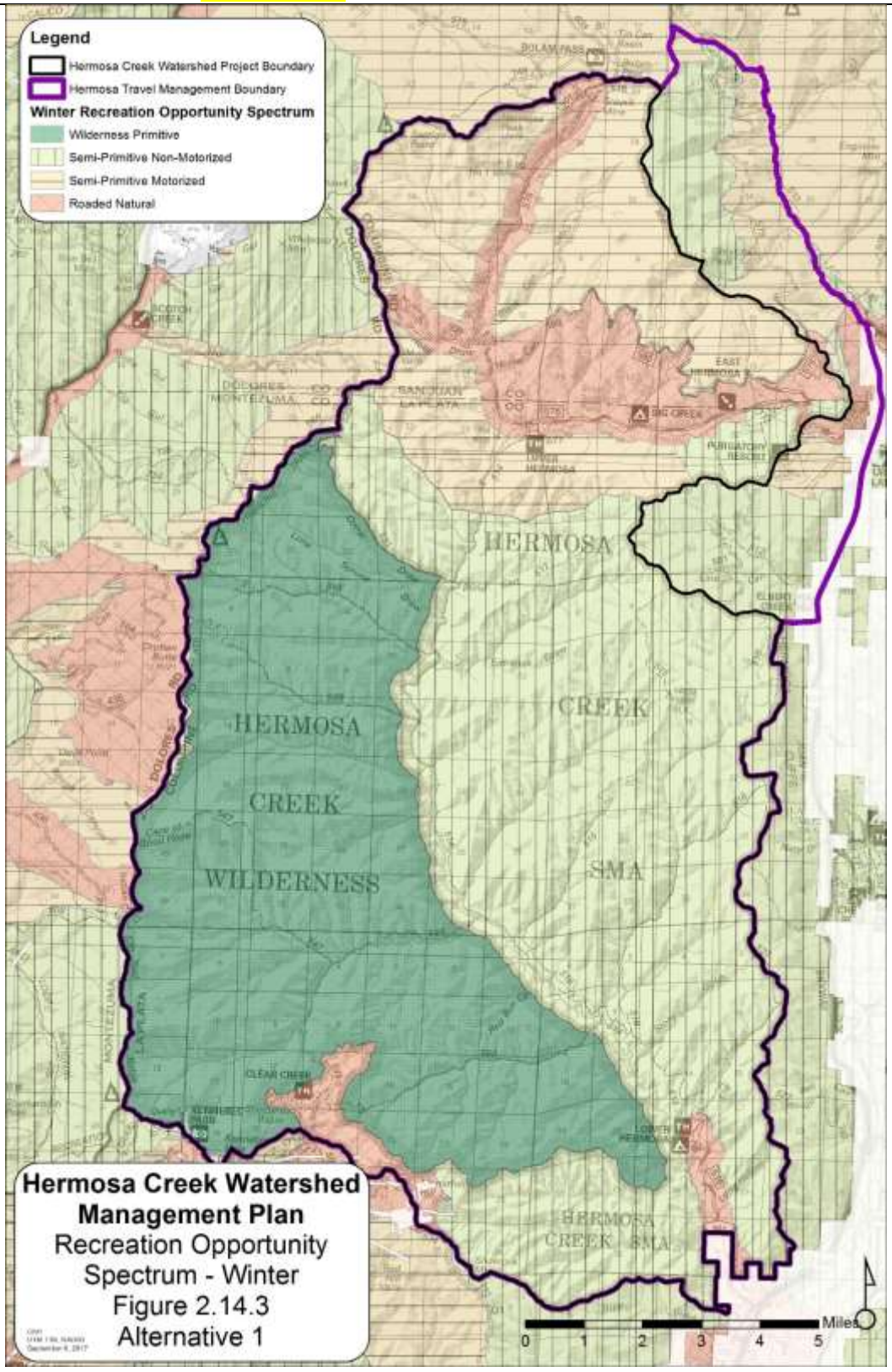


FIGURE 2.14.3 Winter ROS *Alternatives 2 & 3*

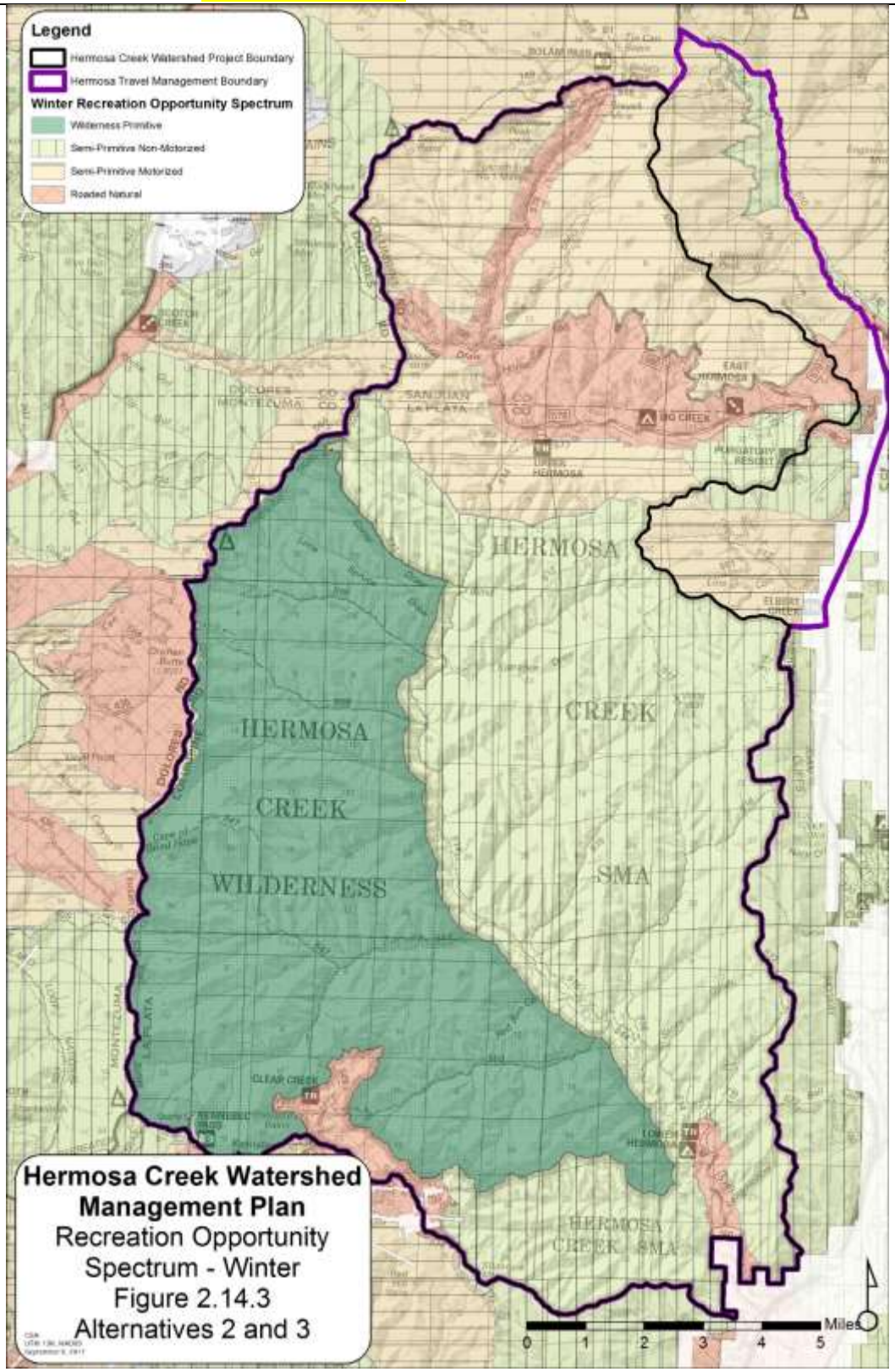


FIGURE 2.14.3 Winter ROS *Alternative 4*

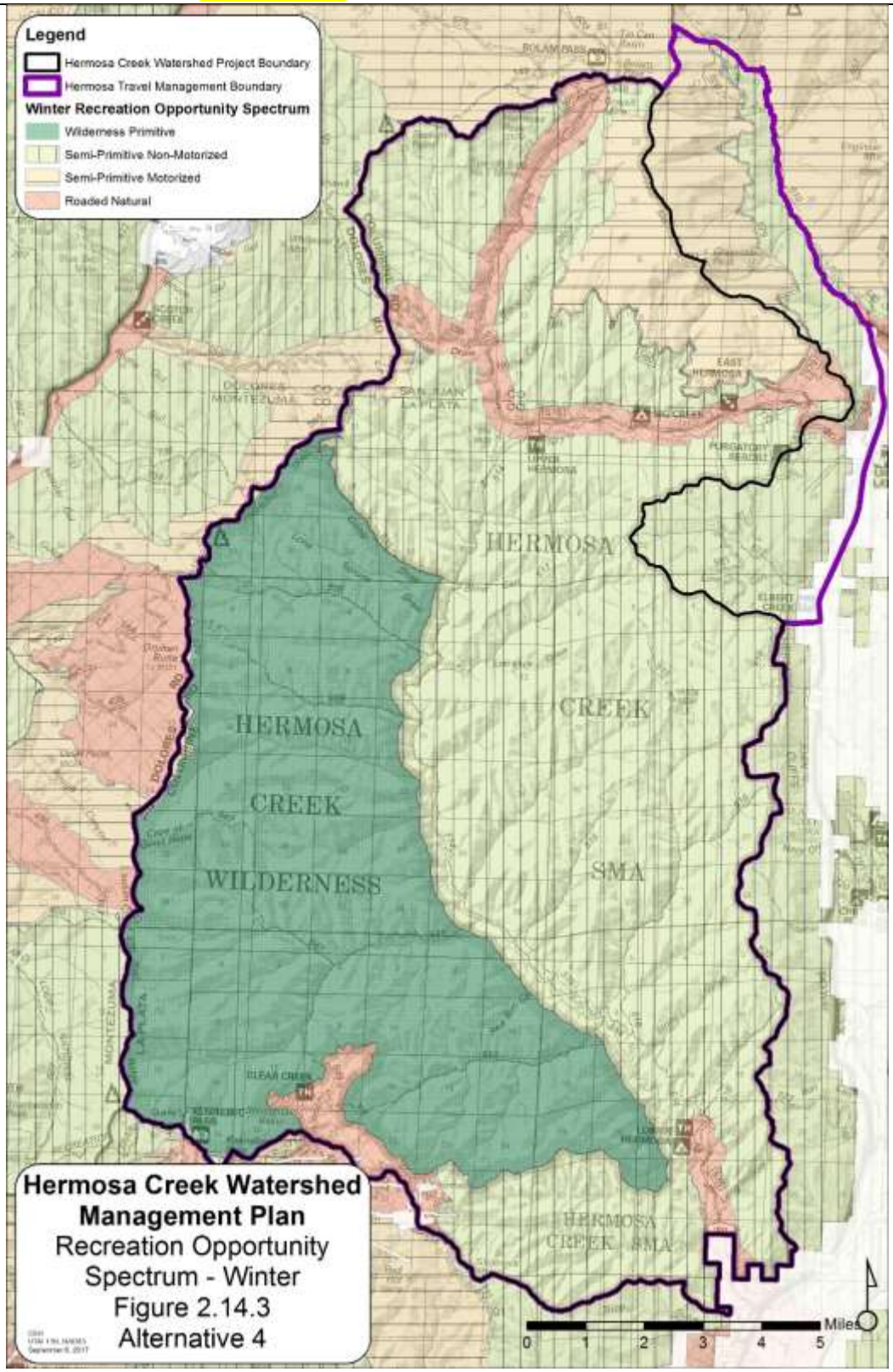


FIGURE 2.15 Scenic Integrity Objectives ***Alternative 1***

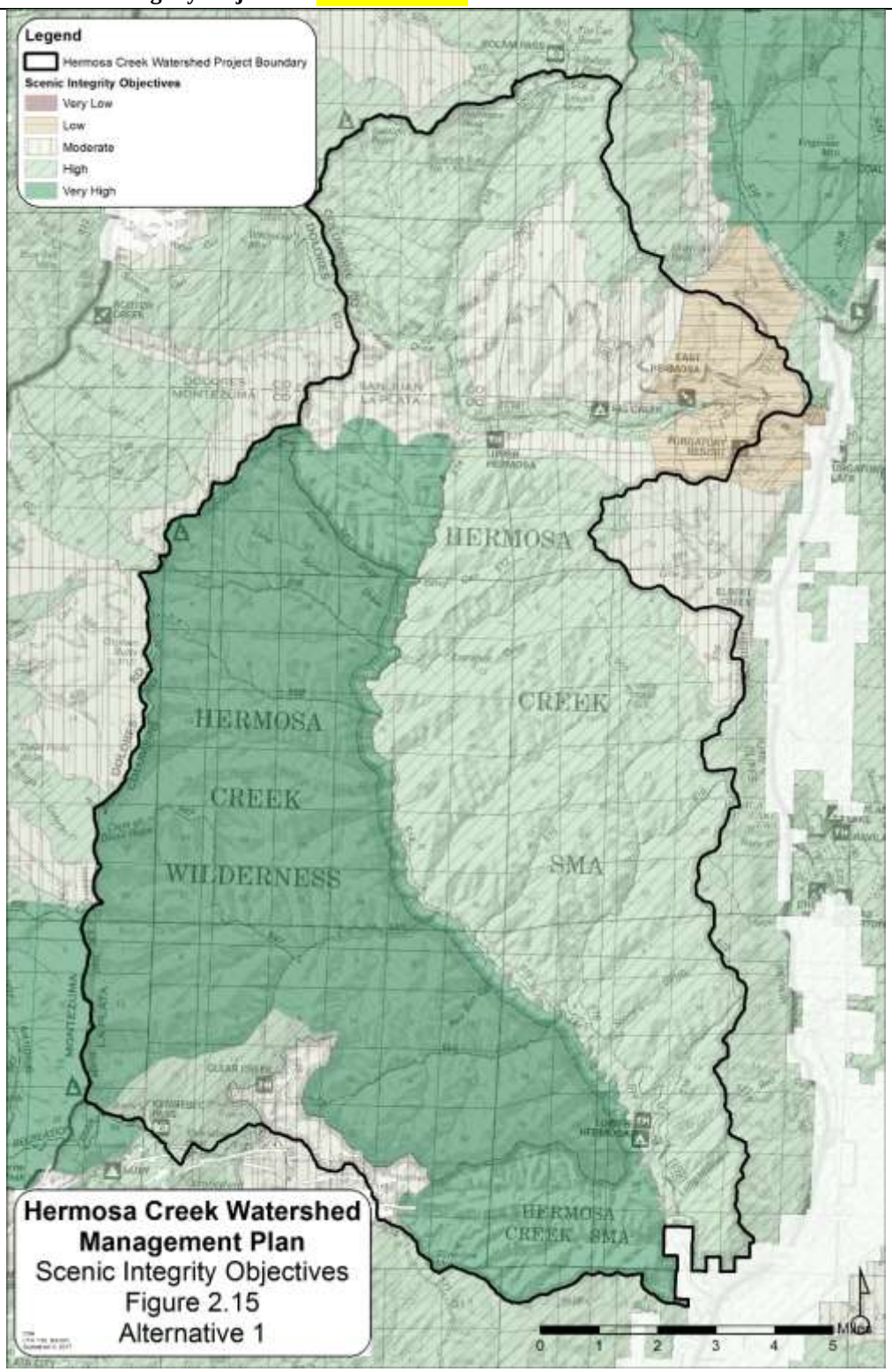


FIGURE 2.15 Scenic Integrity Objectives ***Alternatives 2 & 3***

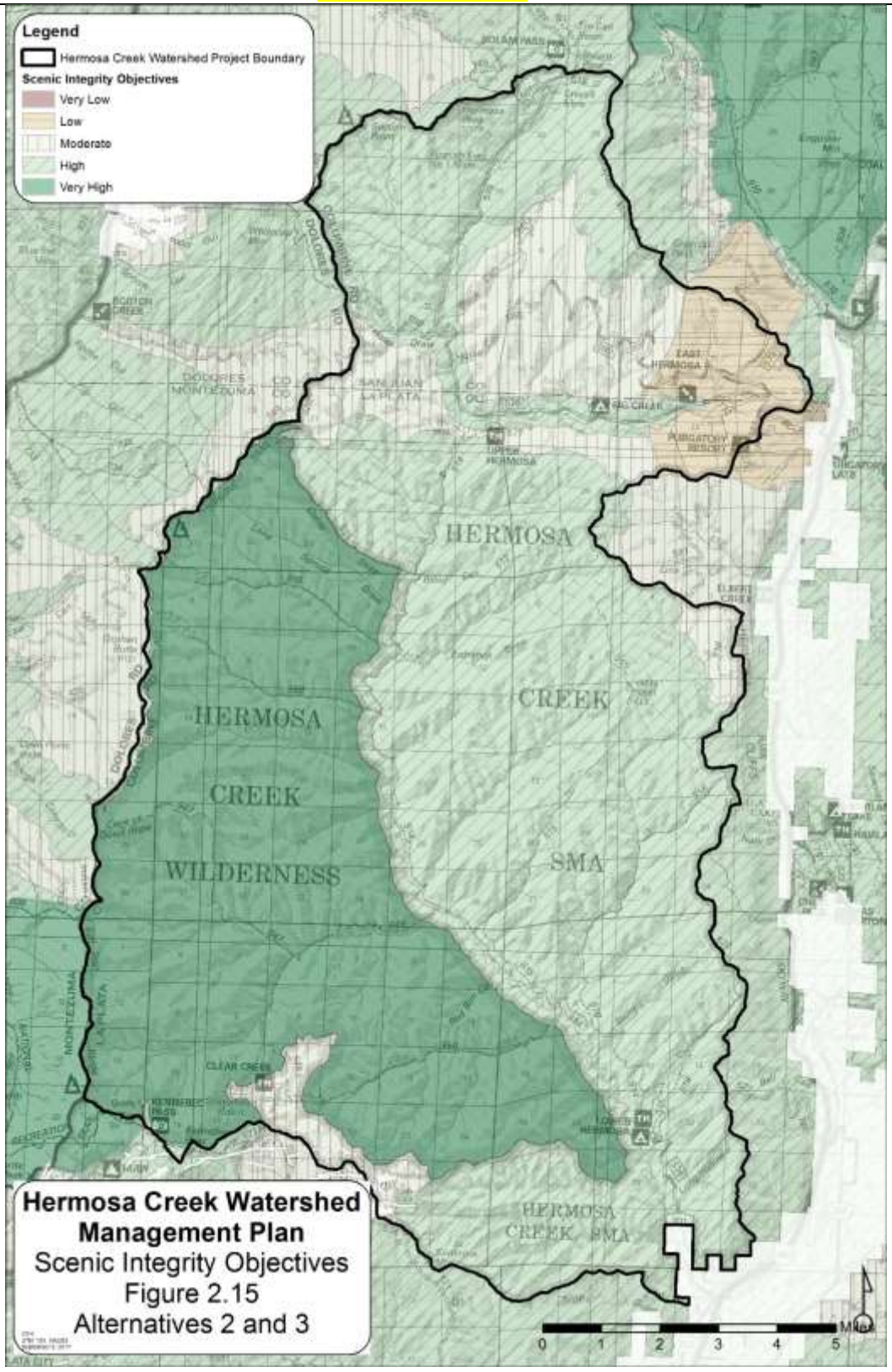
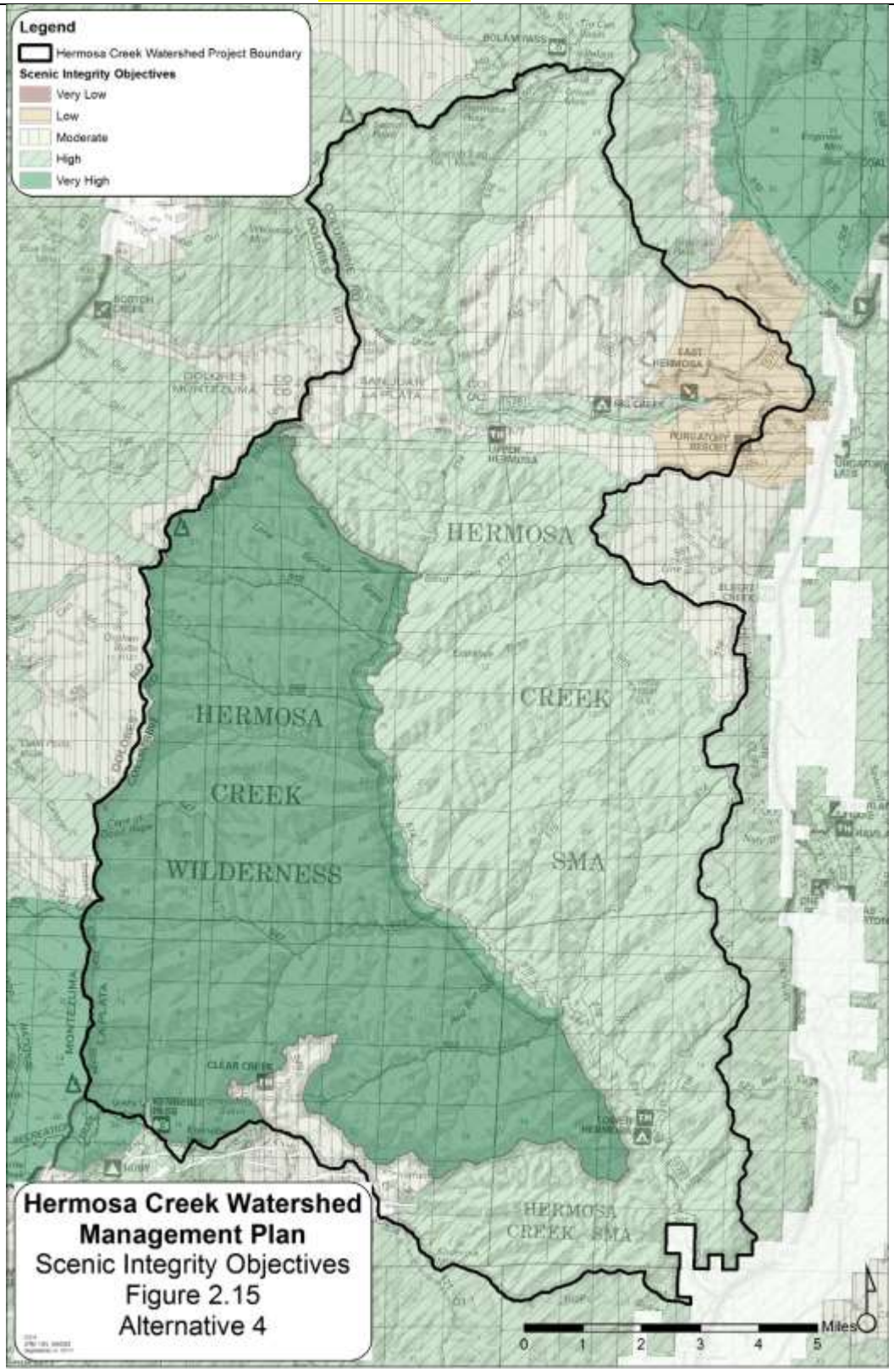


FIGURE 2.15 Scenic Integrity Objectives ***Alternative 4***



Heritage and Cultural Resources

No new Plan components under Alternative 1
Alternatives 2-4 include the following

Desired Conditions

3.28.72 Significant heritage and cultural resources associated with the historic road and trail network within the watershed are preserved, and may be available for interpretation and research.

3.28.73 Significant cultural sites within the watershed are protected from physical damage and excessive wear and tear resulting from visitor use.

3.28.74 The Harris Cabin is protected and properly maintained as a Priority Heritage Asset.

Guidelines

3.28.75 Site-specific management plans for historic and cultural resources should be developed as protection and interpretation needs are identified.

Lands and Special Uses

Non-discretionary legislative requirements apply to all alternatives.

Legislative Requirements

3.28.76 Federal land (and interest in lands) within the SMA is withdrawn from all forms of entry, appropriation, and disposal under the public land laws, subject to valid existing rights, except for parcels A and B.

No new Plan components under Alternative 1.
Alternatives 2-4 include the following.

Desired Conditions

3.28.77 SMA and wilderness boundaries are clearly marked at trail, road and other major points of entry.

3.28.78 Non-recreation special use authorizations are issued only if consistent with the SMA legislation and wilderness management guidelines.

3.28.79 Land ownership within the watershed is consolidated in order to facilitate effective land management.

Guidelines

3.28.80 When offered by a willing seller, the Forest Service should acquire lands or interest in lands within the watershed boundary, dependent upon availability of funding.

Minerals and Energy

Non-discretionary legislative requirements apply to all alternatives.

Legislative Requirements

3.28.81 Except for Parcels A and B, and subject to valid existing rights, federal land (and interest in lands) within the SMA is withdrawn from:

- all forms of entry, appropriation, and disposal under the public land laws;
- location, entry, and patent under the mining laws; and
- operation of the mineral leasing, mineral materials, and geothermal leasing laws.

No new Plan components under Alternative 1.
Alternatives 2-4 include the following.

Desired Conditions

3.28.82 Mineral activities in Parcels A and B, and any valid existing rights in the Hermosa watershed, are managed to conserve and protect resources designated in the enabling legislation.

3.28.83 All minerals within the Hermosa watershed are federally owned or subject to non-surface disturbing agreements, except for within Parcels A and B.

Objectives

3.28.84 Within five years, develop a strategy to move valid existing federal and private mineral rights within the Hermosa watershed into non-surface disturbing status, except for Parcels A and B. This includes pursuing opportunities to acquire private mineral rights from willing sellers.

Standards

3.28.85 No surface use is allowed for exploration or development of leasable minerals in Parcels A and B or under valid existing rights.

3.28.86 Locatable, saleable, or private minerals exploration or development that involves surface disturbance (including dredging) in Parcels A and B, or under valid existing rights elsewhere in the SMA, can occur after a Resource Conservation and Protection Plan (RCPP) is authorized by the FS describing measures in the development activity that will conserve and protect resources designated in the legislation. The RCPP is in addition to any other permits or authorizations needed for development or exploration activities.

3.28.87 If non-federal minerals within the Hermosa watershed are acquired by the federal government, these areas must be withdrawn from all forms of entry listed in 3.28.82 above.

Guidelines

3.28.88 Short term surface disturbance that can be fully reclaimed within one year to a non-detectable status may be allowed, as determined on a case-by-case basis.

3.28.89 Geologic processes should be allowed to continue shaping the landscape of the Hermosa watershed, unless such processes would interfere with the purposes of the legislation, or would interfere with human health and safety.

Leasing Availability

All Alternatives

Figures 2.19.3, 2.19.4, and 2.19.5 Oil and Gas Leasing Availability in the Forest Plan are amended to show the SMA and Wilderness withdrawn from leasing (except parcels A and B). This is a non-discretionary administrative change to comply with the legislation.

FIGURE 2.19.3 Oil and Gas Leasing – No Surface Occupancy *All Alternatives*

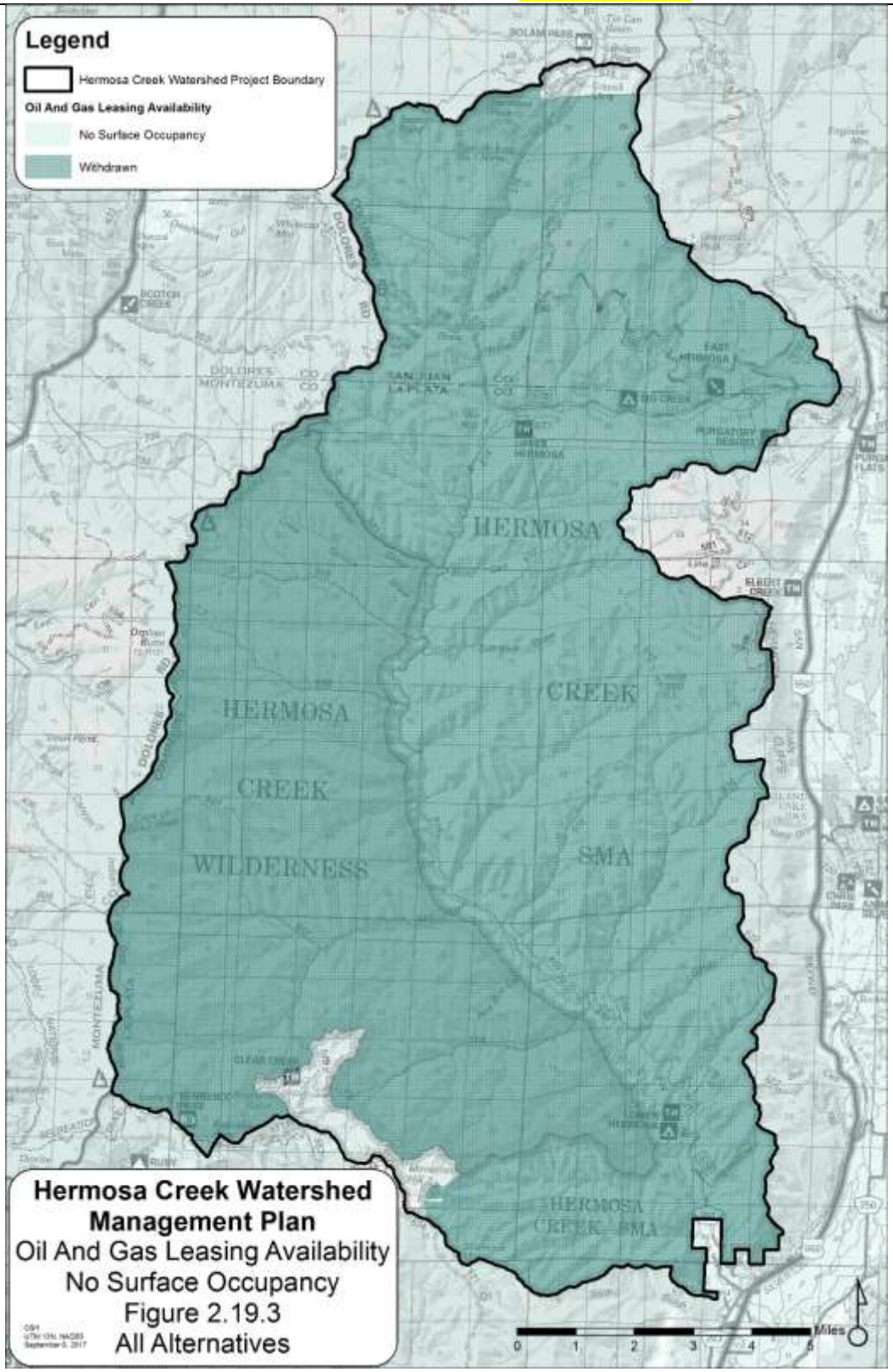


FIGURE 2.19.4 Oil and Gas Leasing – Controlled Surface Use *All Alternatives*

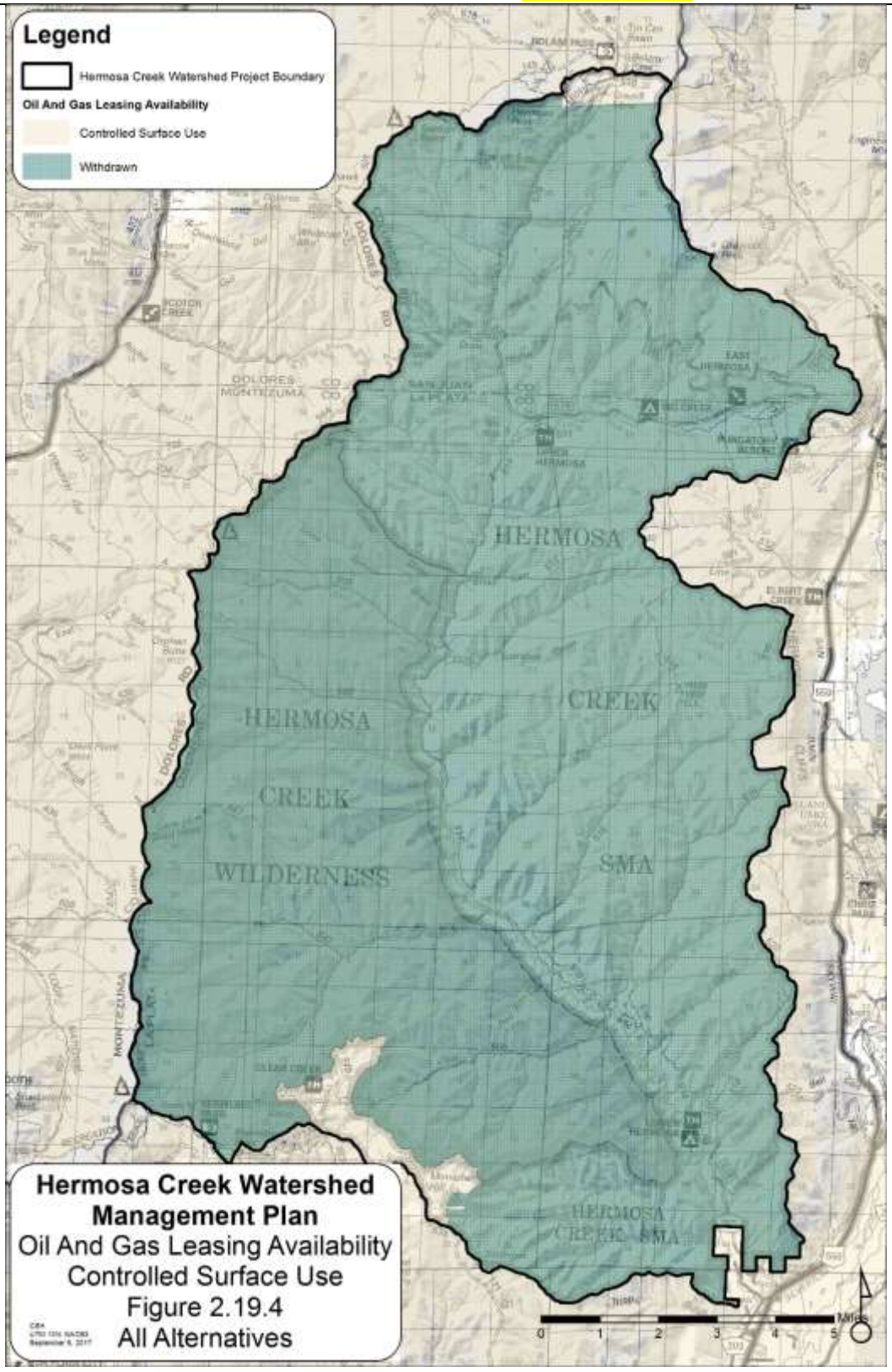
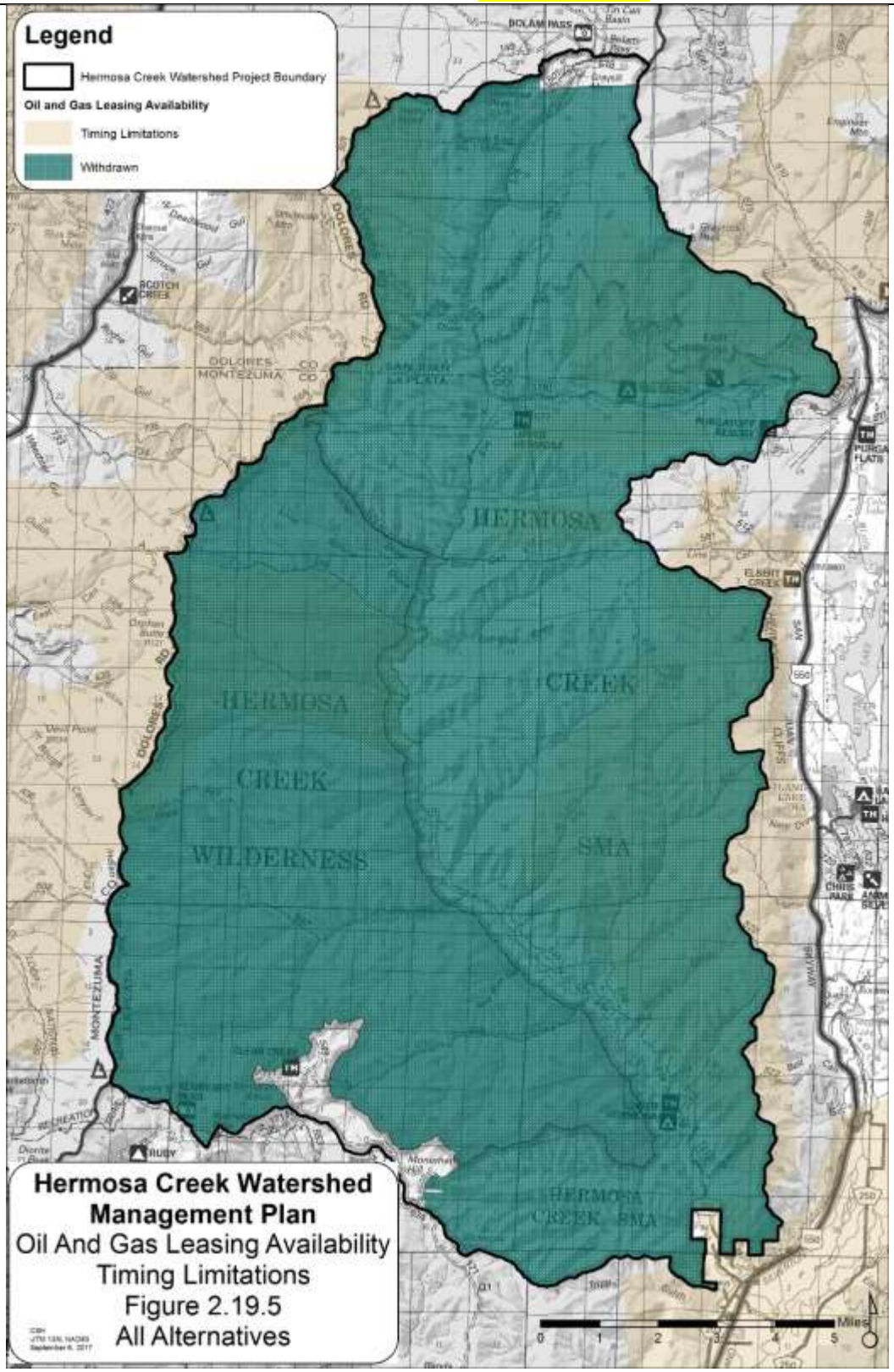


FIGURE 2.19.5 Oil and Gas Leasing – Timing Limitation *All Alternatives*



3.0 Area Direction for Hermosa Creek Watershed

Columbine Ranger District Geographic Area

Table 3.3.1- Management Area Distribution in the Columbine Geographic Area in the Forest Plan is amended to reflect the new acreages that result from the designation of the Hermosa Creek Wilderness, now Management Area 1, and to reflect that the Hermosa SMA is now Management Area 2. These are non-discretionary administrative changes to comply with the legislative designations.

TABLE 3.3.1. Management Area Distribution in the Columbine Geographic Area by Alternative

Management Area	Acres of Columbine Ranger District			
	Alt. 1	***Alt. 2***	***Alt. 3***	***Alt. 4***
MA 1: natural processes dominate	306,729	300,707	300,707	302,347
MA 2: special areas and designations	112,752	118,774	118,774	117,134
MA 3: natural landscapes, with limited management	175,794	175,794	175,794	175,794
MA 4: high-use recreation emphasis	29,168	29,168	29,168	29,168
MA 5: active management, (commodity production to meet multiple-use goals)	52,031	52,031	52,031	52,031
MA 7: public and private lands intermix	7,840	7,840	7,840	7,840
MA 8: highly developed areas	2,274	2,274	2,274	2,274
Total	686,588	686,588	686,588	686,588

Management Areas

Figure 3.5 Management Areas

Alternative 1 Figure 3.5 in the Forest Plan is amended to change the SMA portion of the watershed to Management Area 2; this is a non-discretionary administrative change to comply with the legislation designation. Management Area 1 is retained for all the wilderness and recommended wilderness in this alternative.

Alternatives 2 & 3 Figure 3.5 would be amended to remove Management Area 1 from all but the designated wilderness. This is because all recommended wilderness is removed in these alternatives. Changes to the recommended wilderness are discretionary and are discussed below in the *Wilderness Area Direction* section.

Alternative 4 Figure 3.5 would be amended to make Management Area 1 match the wilderness boundary and the recommended wilderness boundary of this alternative, which includes the corridor along Hermosa Creek.

FIGURE 3.5 Management Areas *Alternative 1*

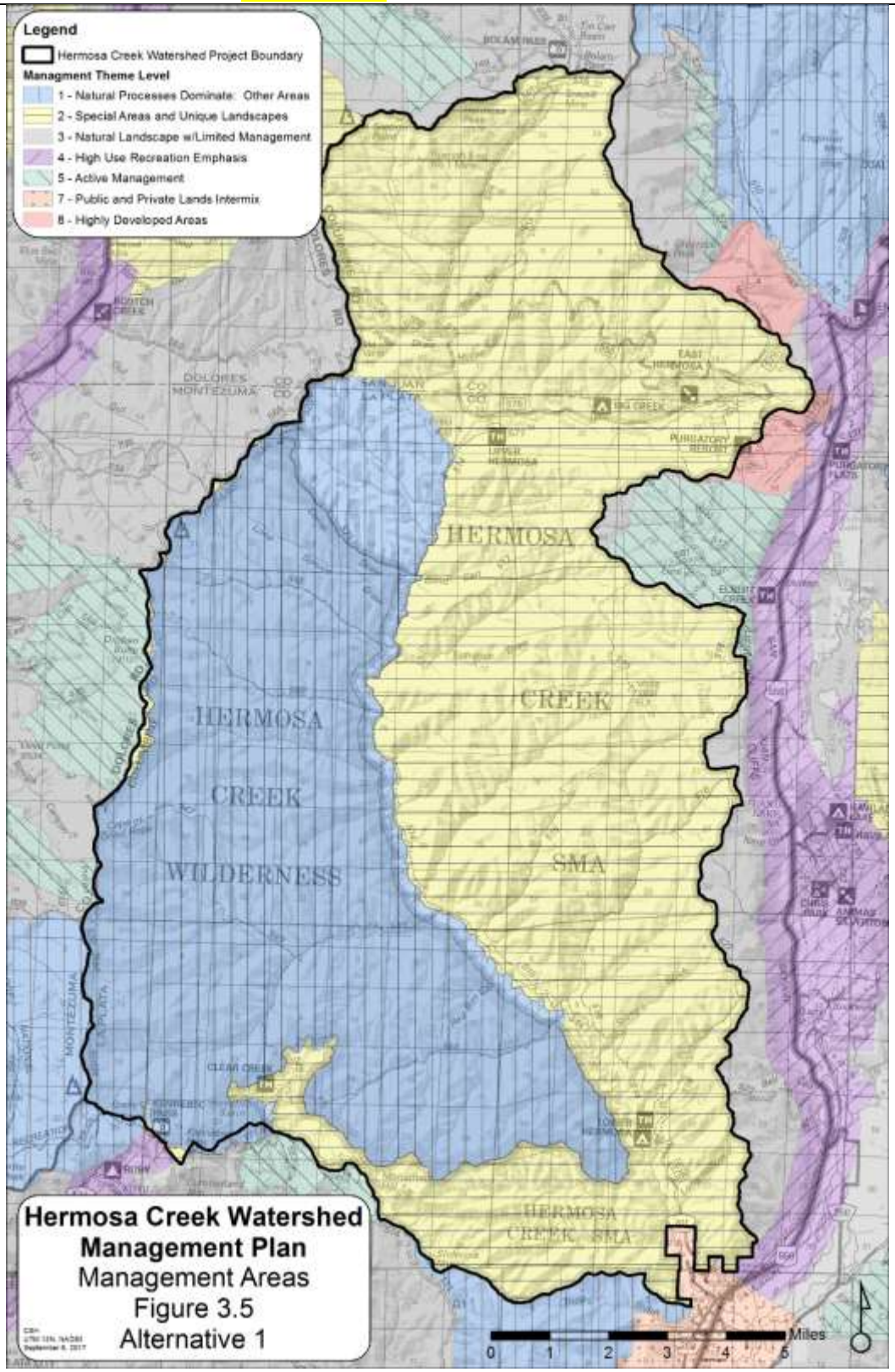


FIGURE 3.5 Management Areas ***Alternatives 2 & 3***

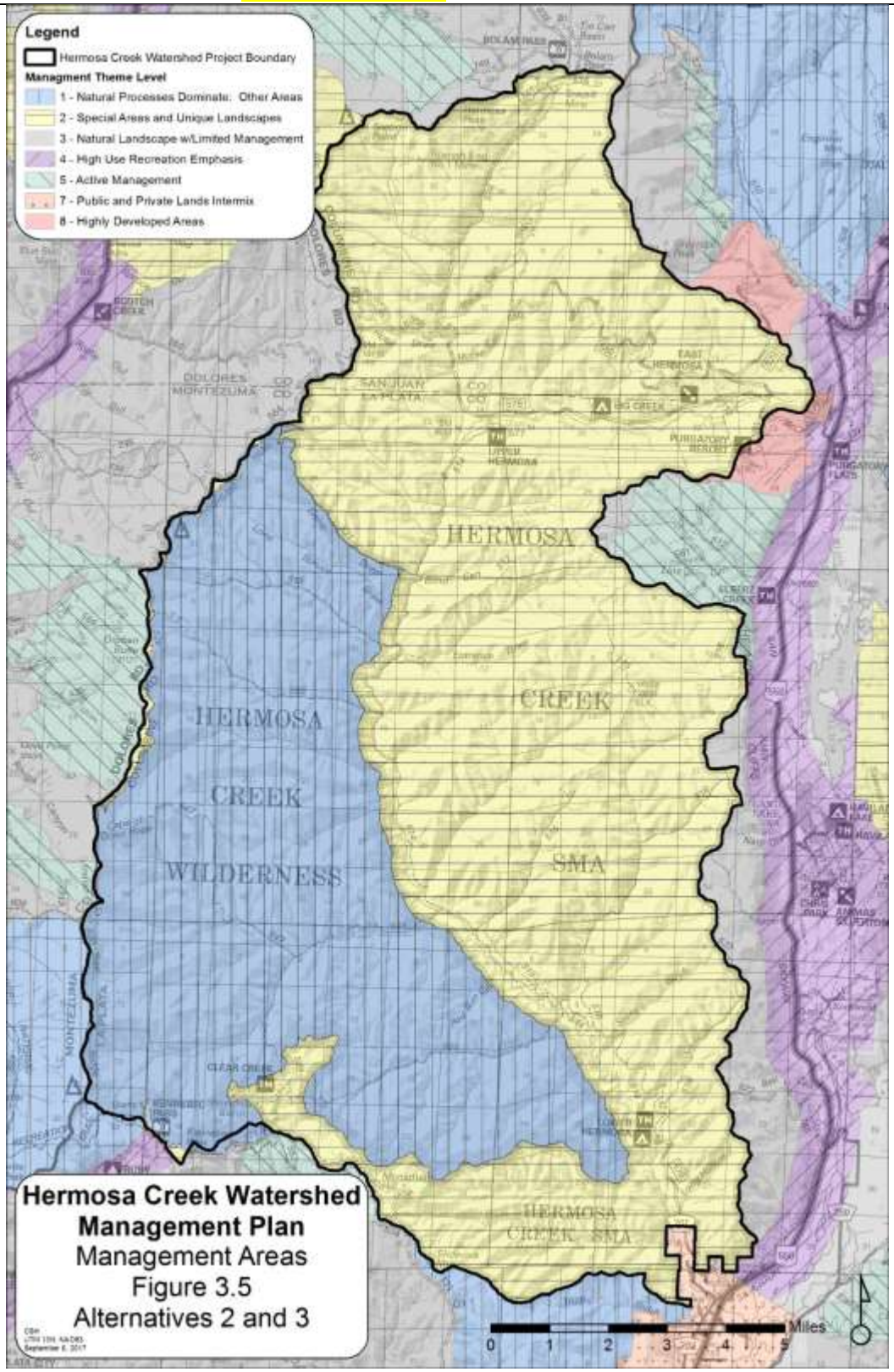
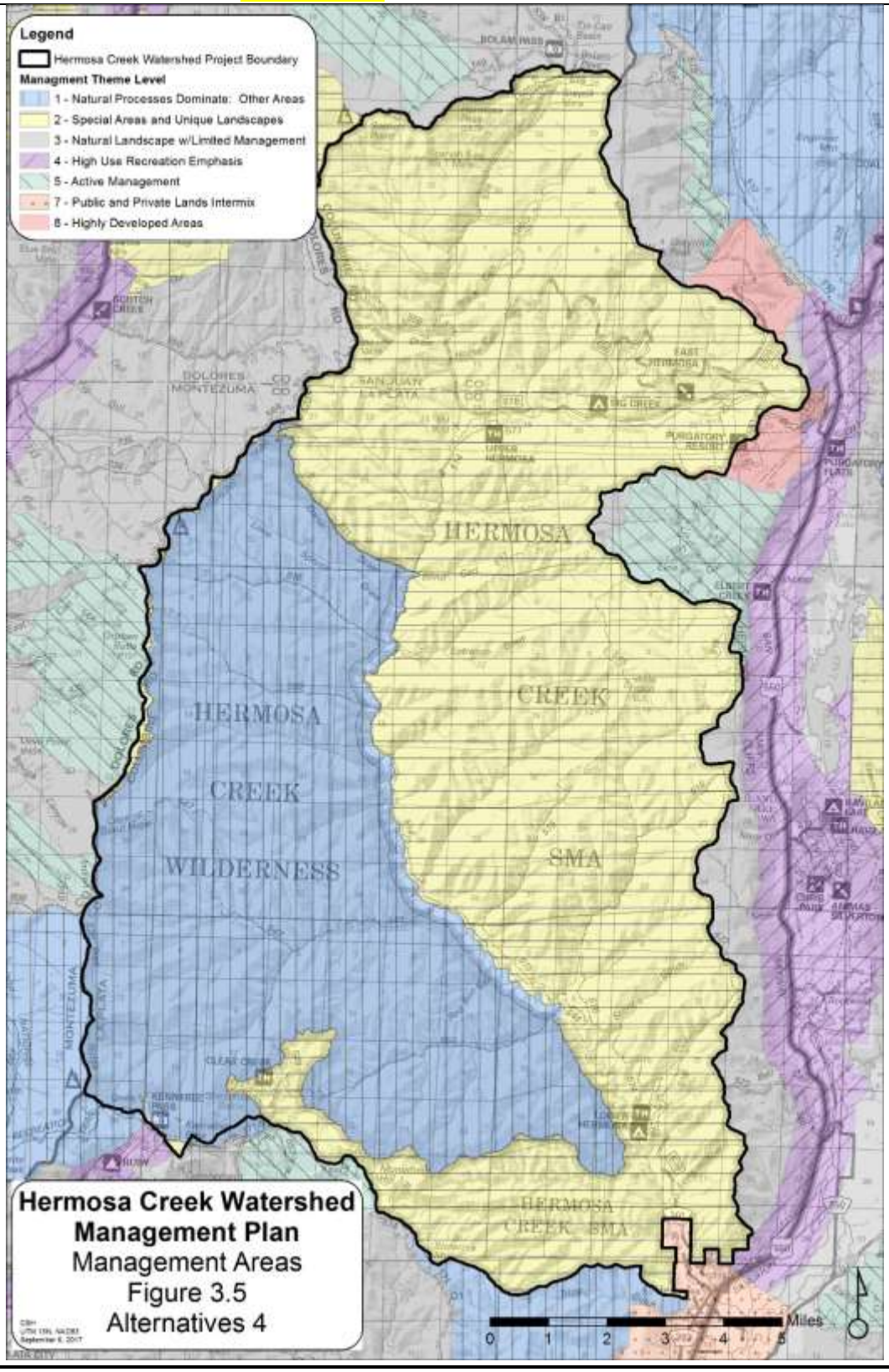


FIGURE 3.5 Management Areas *Alternative 4*



Wilderness and Recommended Wilderness

No new Plan components under Alternative 1
Differences between Alternatives 2-4 are noted

Desired Conditions

3.28.90 Wilderness boundaries and regulations are clearly posted on the ground.

Objectives

3.28.91 Make special education and enforcement efforts in the first 10 years after the legislation.

3.28.92 Post boundaries within three years of the legislation.

Standards

3.28.93 Adopt the standards in the SJNF Wilderness Management Direction.

Guidelines

3.28.94 ***Alternatives 2 & 3*** Adopt the guidelines from the SJNF Wilderness Management Direction, except camping and campfires are not permitted within 50 feet of streams or lakes because of terrain restrictions (instead of 100' as in the Weminuche).

3.28.94 ***Alternative 4*** Adopt the guidelines from the SJNF Wilderness Management Direction.

Figure 3.6.1 Wilderness and Recommended Wilderness

Alternative 1 Figure 3.6.1 is amended to reflect the new wilderness area. This is a non-discretionary administrative change to comply with the legislation. No change would be made to the remainder of the recommended wilderness.

Alternatives 2 & 3 Figure 3.6.1 would be amended to remove all previously recommended wilderness in the watershed from recommendation (6,200 acres) because these acres were not designated as wilderness in the legislation.

Alternative 4 Figure 3.6.1 would be amended to remove approximately 4,530 acres of recommended wilderness north of Corral Creek (and some slivers west and south of the wilderness) from recommended wilderness. The ¼ mile-wide strip along the creek (1,640 acres) would remain as recommended wilderness because it is ecologically and topographically identical to the adjacent designated wilderness.

Figure 3.6.2. Management Prescription Areas within the Hermosa Creek Wilderness is added to the SJNF Wilderness Management Direction (*SJNF 1998*). This figure depicts Management Prescriptions 1.11 and 1.12, as described in the Wilderness Management Direction:

- Prescription 1.11 Pristine- Natural processes and conditions have not and will not be measurably affected by human use. These areas provide opportunities for solitude; travel in these environments require knowledge and skills, without dependence on management presence (trails, signs).

- Prescription 1.12 Primitive - These areas of wilderness feature natural environmental conditions and offer a moderate degree of solitude. Natural processes and conditions have not been and will not be significantly affected by human activity (use). Areas are managed to protect ecological conditions with effects of human activity minimized.

FIGURE 3.6.1 Wilderness *Alternative 1*

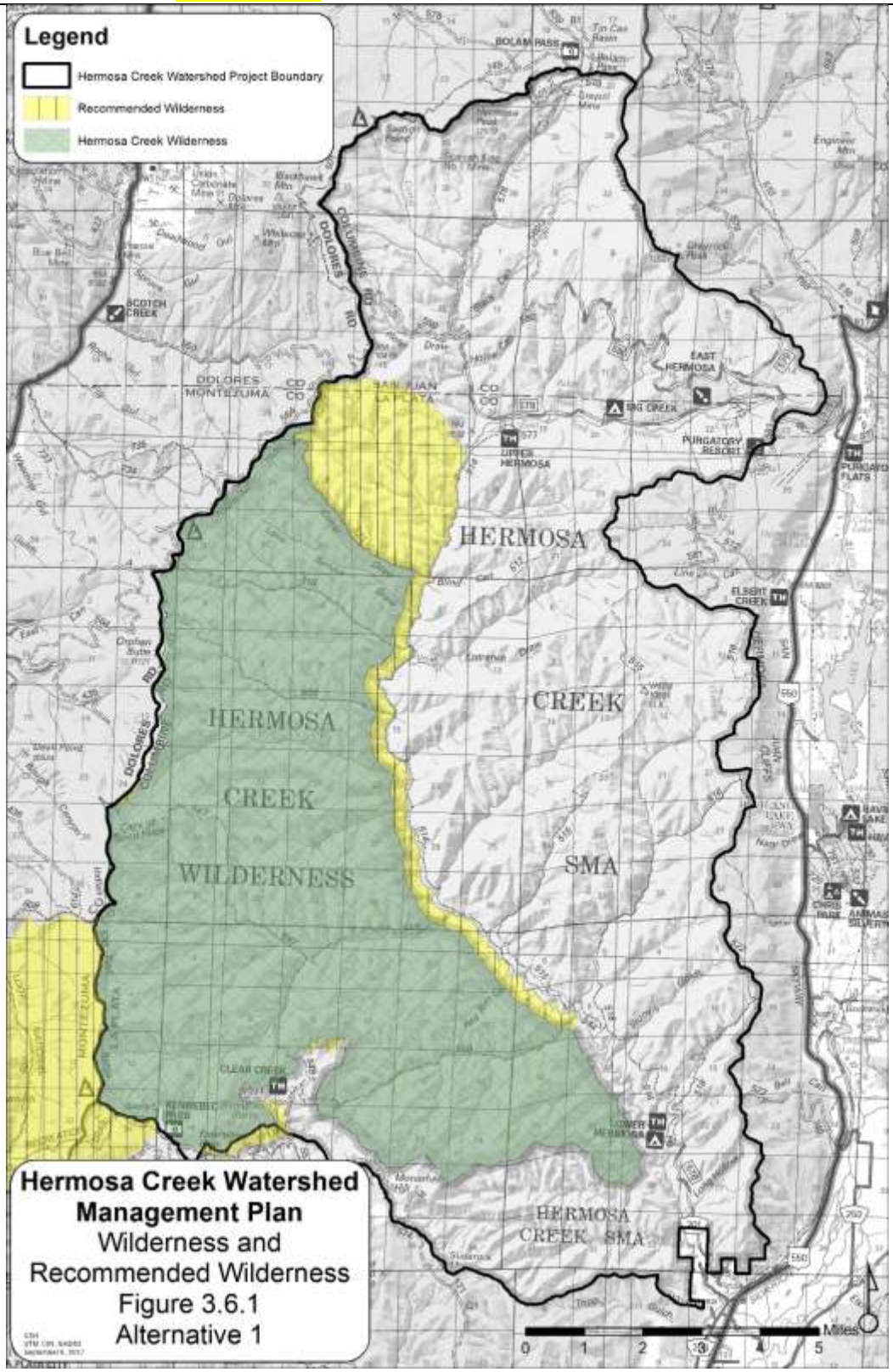


FIGURE 3.6.1 Wilderness *Alternatives 2 & 3*

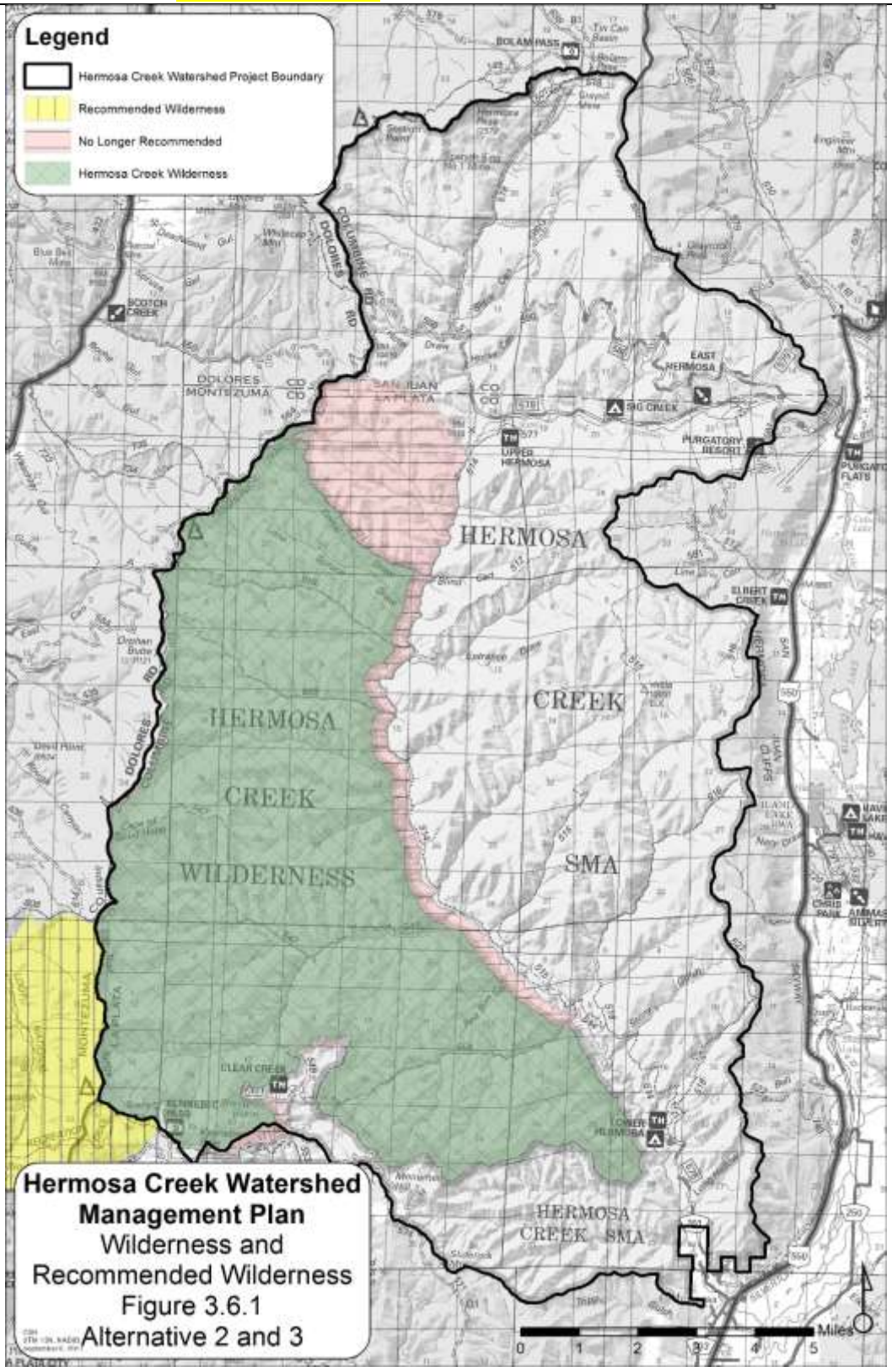


FIGURE 3.6.1 Wilderness *Alternative 4*

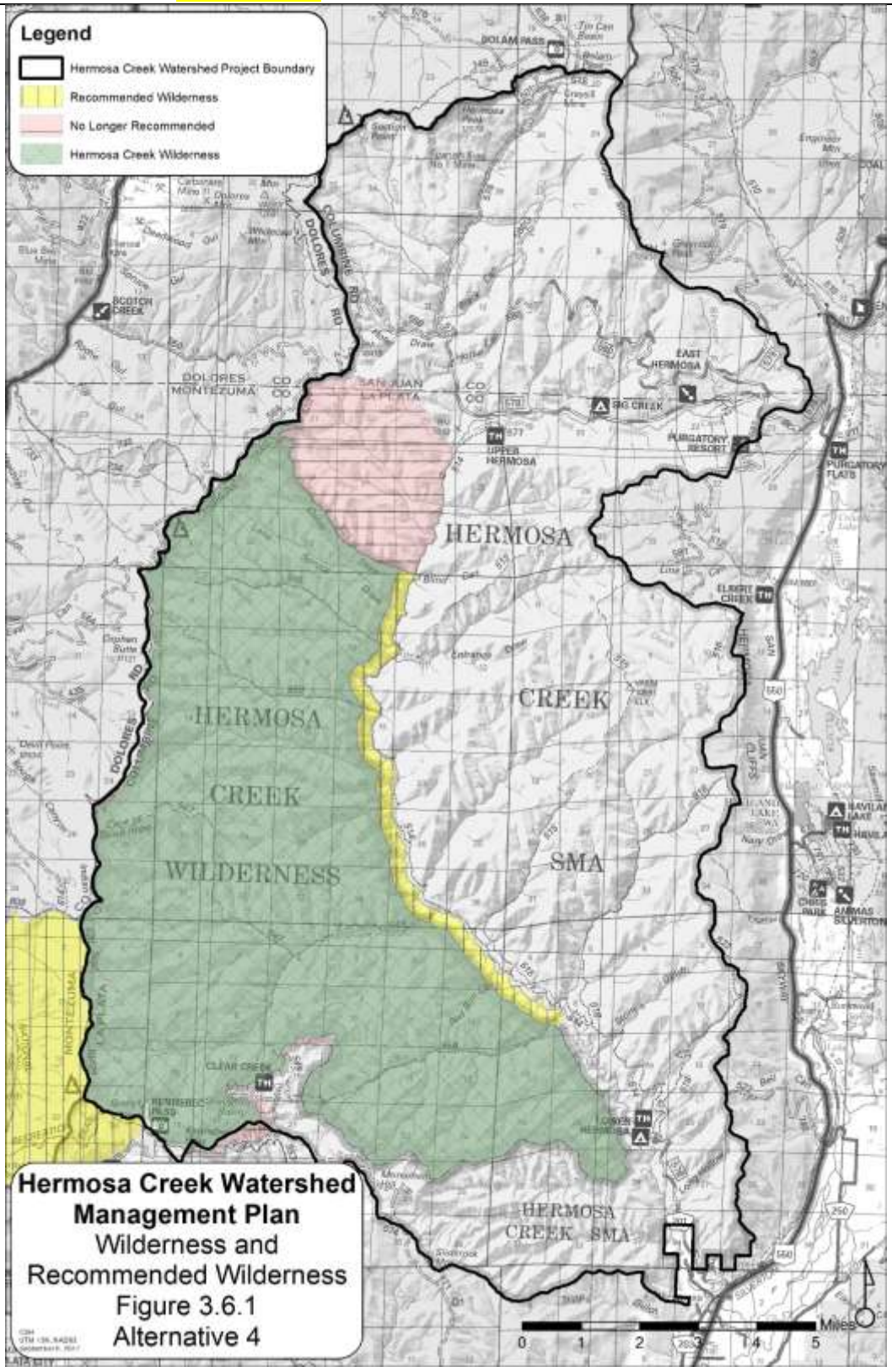
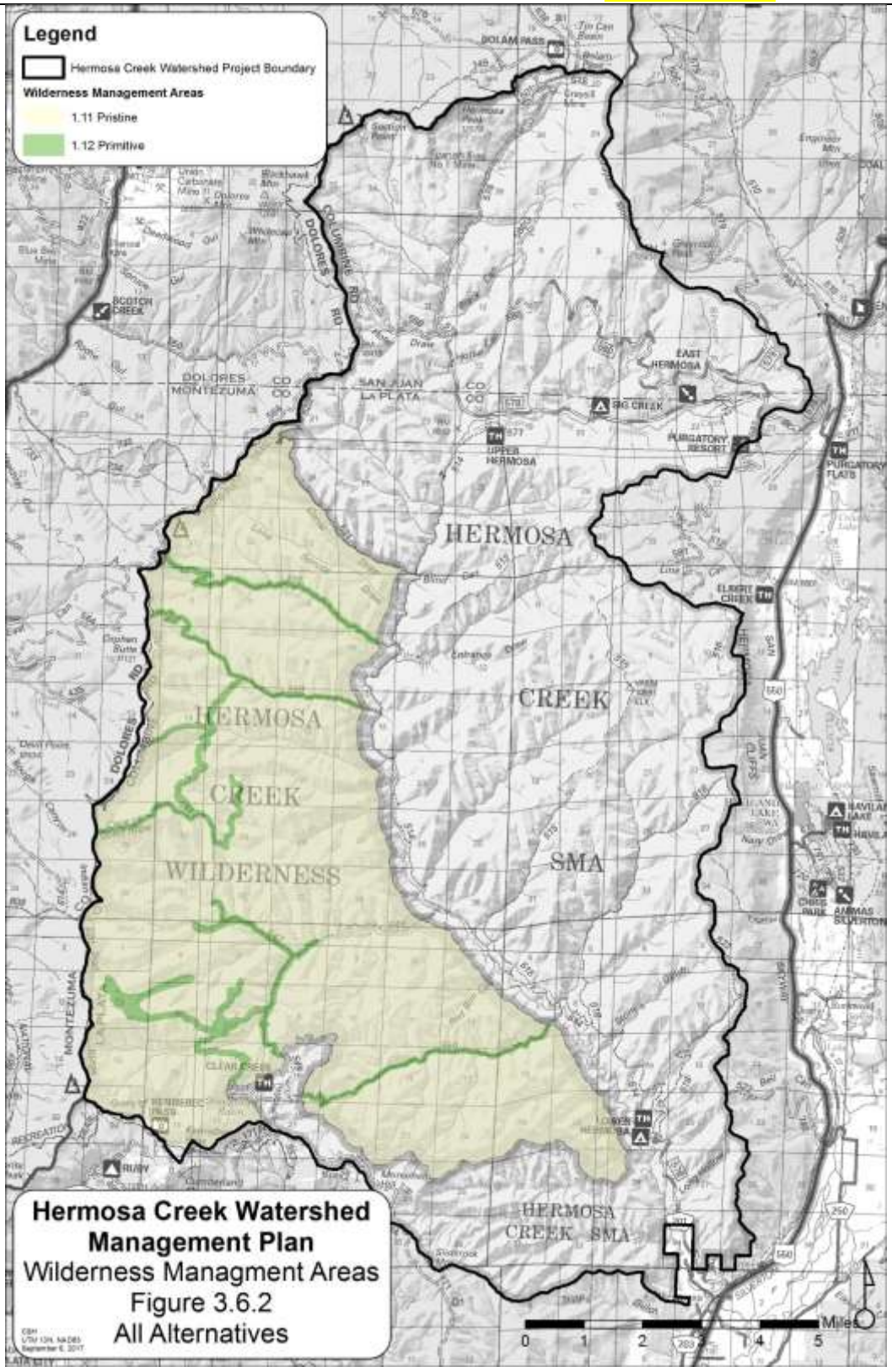


FIGURE 3.6.2. Hermosa Creek Wilderness Management Prescriptions *All Alternatives*



Allowable Uses Hermosa Creek Watershed

The allowable uses in the following table are not all-inclusive.

TABLE 3.28.3. Allowable Uses in Hermosa Creek Watershed

Management Activities and Use	Wilderness	RNA	East Hermosa Area & Roadless Areas	Remainder of the SMA
Fire managed for resource benefit	Allowed	Allowed	Allowed	Allowed
Prescribed burning	Restricted - allowed as in Forest Plan	Restricted - allowed as in Forest Plan	Allowed	Allowed
Mechanical fuels treatment	Prohibited	Prohibited	Restricted–allowed as in Roadless Rule	Allowed
Timber production (scheduled on a rotation basis)	Prohibited	Prohibited	Prohibited	Prohibited
Timber harvesting as a tool	Prohibited	Prohibited	Restricted–allowed as in Roadless Rule	Restricted to purposes of the legislation
Commercial use of special forest products and firewood	Prohibited	Prohibited	Restricted–allowed as in Roadless Rule	Restricted to purposes of the legislation
Lands Special Use authorizations, ROWs and utility corridors.	Restricted - allowed as in Forest Plan	Restricted to purposes of the RNA.	Restricted–allowed as in Roadless Rule	Restricted to purposes of the legislation
Recreation Special Uses	Restricted to Outfitter/Guides	Restricted to Outfitter/Guides	Allowed	Allowed
Livestock grazing (term permits)	Prohibited by previous NEPA decision, except Divide Allot.	Prohibited by previous NEPA decision	Allowed	Allowed
Facilities	Restricted - allowed as in Forest Plan	Prohibited	Restricted–allowed as in Roadless Rule	Allowed
Motorized transport (summer)	Prohibited	Prohibited	Restricted to designated routes	Restricted to designated routes
Motorized transport (winter)	Prohibited	Prohibited	Restricted to designated areas	Restricted to designated areas
Mechanical transport (summer)	Prohibited	Prohibited	Restricted to designated routes	Restricted to designated routes
Mechanical transport (winter)	Prohibited	Prohibited	Restricted to designated routes or areas	Restricted to designated routes or areas
Non-motorized transport (summer and winter)	Allowed	Allowed	Allowed	Allowed
Road construction (permanent or temporary)	Prohibited	Prohibited	Restricted–allowed as in Roadless Rule	Allowed
Minerals – leasable federal (oil and gas, and other)	Prohibited	Prohibited	Prohibited	Prohibited - except for A and B, and valid existing rights
Minerals – locatable federal	Prohibited	Prohibited	Prohibited	Prohibited - except for Parcels A and B, and valid existing rights
Minerals – saleable federal (materials)	Prohibited	Prohibited	Prohibited	Prohibited - except for Parcels A and B, valid existing rights and admin. use

Monitoring Plan

Monitoring is used to determine how well management requirements, such as standards and guidelines, are being applied. The monitoring plan that is part of the Forest Plan will provide information that is applicable for the Hermosa watershed. However, there are a few monitoring items identified that are specific to the Hermosa watershed. The following table will be added to the SJNF Monitoring Plan, and follows the same format and requirements.

TABLE 3.28.4. Monitoring Plan for Hermosa Creek Watershed ***Alternatives 2-4***

Monitoring Question	Desired Conditions and Objectives	Indicators	Scale	Frequency of Reporting	Sources and/or Partners
Status of Select Watershed Conditions					
Are stream conditions stable or moving towards desired conditions?	DC 3.28.18 The East Fork of the Hermosa and the reach of Hermosa Creek just above the East Fork confluence, and their riparian corridors, are in a 'Robust' stream health category, as defined in the Watershed Conservation Practices Handbook.	Number of sites monitored, and number in Robust condition.	site or reach	5-10 years	unit reporting
		Snow compaction and mechanical impacts from over-snow motorized vehicles during low snow conditions	East Fork of Hermosa Park	Twice a year	Unit reporting
Status of Fish Species					
Are non-native trout effectively excluded from CRCT occupied habitat, ensuring CRCT long-term persistence?	DC 3.28.22 Natural and manmade barriers to upstream fish migration adequately protect CRCT populations while allowing for stream reaches large enough to support long term population viability. DC 3.28.23 Manmade barriers to upstream fish migration within CRCT habitat are maintained to ensure effectiveness.	Number of CRCT stream segments with no non-native trout.	Hermosa watershed	3-5 years	unit reporting, CPW

Comparison of Plan-Level Components

The following table compares alternatives for discretionary Plan-level proposals only; it does *not* include those items that are non-discretionary legislative requirements.

TABLE. Comparison of Forest Plan Components by Alternative

	Alt. 1 Current	Alt. 2 Proposed	Alt. 3	Alt. 4
Terrestrial Ecosystems		• Identifies cover type percentages = future veg mgt. projects • Management practices in anticipation of climate change	• Identifies cover type percentages = future veg mgt. projects • Management practices in anticipation of climate change	• Management practices in anticipation of climate change
Riparian/ Wetland/ Aquatic		• "Robust" rip health & "good" watershed condition = future restoration projects • CRCT program encourages barriers and road crossing projects	• "Robust" rip health & "good" watershed condition = future restoration projects • CRCT program encourages barriers and road crossing projects	• "Robust" rip health & "good" watershed condition = future restoration projects • CRCT program encourages barriers and road crossing projects
Timber		• Emphasizes reforestation	• Emphasizes reforestation	
Fire		• Encourages prescribed and natural fire • Keeps helispots clear	• Encourages prescribed and natural fire • Keeps helispots clear	
Recreation/ Travel Management	• 47,500 a Suitable Over-Ground Travel • 15,600 a Suitable Over-Snow Travel	• 50,700 a Suitable Over-Ground Travel • 35,300 a Suitable Over-Snow Travel • 1:1 maintain trail miles ratio	• 50,700 a Suitable Over-Ground Travel • 35,300 a Suitable Over-Snow Travel	• 50,700 a Suitable Over-Ground Travel • 15,900 a Suitable Over-Snow Travel • 2:1 decrease trail miles ratio
Livestock		• Protect streambank restoration • Stream health threshold higher	• Protect streambank restoration	• Protect streambank restoration • Stream health threshold higher
Minerals		• No Surface Occupancy (Oil & Gas) • Surface disturbance controlled for other minerals	• No Surface Occupancy (Oil & Gas) • Surface disturbance controlled for other minerals	• No Surface Occupancy (Oil & Gas) • Surface disturbance controlled for other minerals
Wilderness	• 6,200 a recommended wilderness	• 0 a recommended wilderness • 35,000 a Management Area 1.11 • 2,400 a Management Area 1.12 • 50'from water restriction on camping & fires	• 0 a recommended wilderness • 35,000 a Management Area 1.11 • 2,400 a Management Area 1.12 • 50'from water restriction on camping & fires	• 1,600 a recommended wilderness • 35,000 a Management Area 1.11 • 2,400 a Management Area 1.12 • All same regulations as Weminuche (100' from water)

4.0 ALTERNATIVES for RECREATION & TRAVEL MANAGEMENT PROJECT

The purpose for this Recreation and Travel Management project is to establish regulations to manage transportation within the Hermosa Creek watershed in accordance with the requirements of the Travel Management Rule (*36 CFR 212*), Executive Orders 11644 and 11989, and the Hermosa Creek Watershed Protection legislation (*P.L. 113-291*). The proposal will designate a system of roads, trails, and areas by vehicle class and time of year, including both over-ground and over-snow designations and will designate allowable uses on trails (*36 CFR 212 Subparts B and C*). The proposal will also identify the minimum road system needed for safe and efficient travel, and for administration, utilization, and protection of FS lands, and will designate the administrative maintenance levels of those roads (*36 CFR 212 Subpart A*), and will designate where off-road motorized and mechanized travel for dispersed camping and day-use parking will be allowed. The proposal will also result in the verification and/or revision of the Motor Vehicle Use Map (MVUM) (*36 CFR 212.56*) that displays the designated system of roads and trails for over-ground motorized travel, and will result in the development of an Over-Snow Vehicle Use Map (OSVUM) (*36 CFR 212.81c*). Non-motorized trails will be displayed on the Forest Visitor Use Map or other FS-generated maps. A long-term plan for developed recreation sites within the watershed is also included.

The recreation and travel management proposal covers travel regulations on Forest land within the Hermosa Creek watershed boundary, and additionally, it also covers some roads, trails and areas slightly beyond the watershed boundary because of their connectedness to the roads and trails within the watershed. Roads and trails that are accessible only by traveling through the watershed, or that cross back and forth across the watershed boundary, or over-snow areas that are accessed primarily only through the watershed are included. For example, the Elbert Creek Road 581, the Cascade Divide Road 579, the Hermosa Park Road 578 connecting to Highway 550, the Elbert Creek Trail west of the Elbert Creek Road 581, and the Colorado Trail where it parallels the watershed boundary are included in this analysis. Conversely, some roads and trails that connect to the transportation system in the watershed are *not* included in this analysis because they can be accessed from outside the watershed. For example, the Graysill Trail, the Elbert Creek Trail east of the Elbert Creek Road, the Goulding Trail, and the Mitchell Lakes Road.

Many parts of the proposal would be included under all action alternatives (Alternatives 2-4). In order to avoid repetitious writing, the description of the proposal is given once, and it is noted ***in this highlighted font*** if alternatives differ.

Some key points of law, regulation and policy to keep in mind are:

- All motorized and mechanized travel within the watershed is restricted to designated roads, trails, and areas, year-round. **This includes bicycles**, which is a type of restriction not previously found on the SJNF, but is required by the Hermosa Creek Watershed Protection legislation (referred to as "the legislation") within the Special Management Area.

- All designated roads, trails, and areas would also be open for non-motorized and non-mechanized types of travel, year-round.
- Cross-country travel (outside of a designated route or area) is therefore only allowed for non-motorized and non-mechanized types of travel (e.g. foot, horse, ski, and snowshoe).
- All motorized and mechanized transportation is prohibited in the wilderness (*PL 88-577*); this includes, but is not limited to, motorcycles, OHVs, Segways, bicycles, unicycles, and game carts.
- Airspace is regulated by the Federal Aviation Administration, however use of the ground surface for operation of aircraft is within the jurisdiction of the FS. Manned or unmanned aircraft including, but not limited to, hang gliders, paragliders, hovercraft, airplanes, helicopters, and drones may not take off from, or land within wilderness. Additionally, unmanned aerial systems (drones) must be operated from outside the boundary of wilderness and must remain in sight of the operator (*USDA 2016*).
- Travel Management designations would apply to the general public only. Exceptions could be allowed for such activities as those authorized under permit, administrative use, and emergency access (*36 CFR 212.51, 212.81*). Exceptions may also be allowed for private land access.
- Travel Management regulations within the boundaries of the Purgatory Ski Area are also affected by the terms of the ski area permit, associated Operating Plan, Forest Service (FS) ski area management policy (*FSM 2300*), and Forest Closure Order (*SJNF 2010*). Private land at the base area adjacent to the forest also affects how the public can access the FS permit area. Motorized over-snow travel by the public within the ski area permit boundary is generally not allowed except on specifically designated routes. Over-ground travel by the public within the ski area permit boundary follows the same regulations as adjacent Forest areas.
- All designations for motorized use within the project area will follow the general criteria for designation of roads, trails, and areas (*36 CFR212.55a*). These criteria are addressed in this EA in the following sections:
    - Natural Resources - See Section 5.0, Wilderness, Watershed/Riparian/Water, Vegetation, Fisheries, and Wildlife.
    - Cultural Resources - See Section 5.0, Heritage/ Cultural.
    - Public Safety - See Section 5.0, Recreation.
    - Provision of Recreation Opportunities - See Section 5.0, Recreation.
    - Access Needs - See Section 5.0, Recreation, Vegetation, Road/Trail/Facilities Costs.
    - Conflicts Among Use of the NF System - See Section 5.0, Recreation.
    - Need for Maintenance and Administration that would arise - See Section 5.0, Road/Trail/Facilities Costs.
    - Availability of resources for maintenance and administration - See Section 5.0, Road/Trail/Facilities Costs.

- In addition to the general criteria, all designations for motorized use of trail and areas will follow the criteria at *36 CFR 212.55b* (commonly known as the minimization criteria) and will consider the effects of the following, with the objective of minimizing:
    - Damage to soil, watershed, vegetation, and other forest resources - See Section 5.0, Wilderness, Watershed/Riparian/Water, Vegetation, Fisheries, and Wildlife.
    - Harassment of wildlife and significant disruption of wildlife habitats - See Section 5.0, Fisheries, and Wildlife.
    - Conflicts between motor vehicle use and existing or proposed recreational uses of National Forest System lands or neighboring Federal lands - See Section 5.0, Recreation.
    - Conflicts among different classes of motor vehicle uses of National Forest System lands or neighboring Federal lands - See Section 5.0, Recreation.

  In addition, the responsible official shall consider:
    - Compatibility of motor vehicle use with the existing conditions in populated areas, taking into account sound, emissions, and other factors - See Section 5.0, Recreation.

Definitions:

- *Mechanized vehicle/transportation* is defined as any contrivance for moving people or material in or over land, water, or air, having moving parts, that provides a mechanical advantage to the user, and that is powered by a living or nonliving power source. This includes, but is not limited to, sailboats, hang gliders, parachutes, bicycles, game carriers, carts, and wagons. It does not include wheelchairs when used as necessary medical appliances. It also does not include skis, snowshoes, rafts, canoes, sleds, travois, or similar primitive devices without moving parts (*FSM 2320.5(3)*).
- *Motorized vehicle/transportation* is defined as any vehicle which is self-propelled, other than: (1) a vehicle operated on rails; or (2) wheelchair or mobility devices. E-bikes (electric bikes) are therefore considered motorized vehicles, and are therefore subject to regulation under the Travel Rule. (*36CFR212*).
- *Over-ground vehicle* is defined for the purposes of this analysis and decision as wheeled motorized or wheeled mechanized vehicles (no tracks).
- *Over-snow motorized vehicle* is a motorized vehicle designed for use over-snow and that runs on a track, or track with ski(s) (*36CFR212.1*).
- *OHV (Off-Highway Vehicle)* is a motorized vehicle that is designed for, or capable of, cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain (*36CFR212.1*), including ATVs (all-terrain vehicles), UTVs (utility task vehicles), dirt bikes, e-bikes, and motorcycles.
- *OHV Trail* is, for the purposes of this analysis and decision, an authorized trail allowing vehicles 50" in width or less, unless otherwise noted (abbreviated as '<50" wide' in this document). The MVUM designation would be "Trails Open to Vehicles 50" or Less in Width." Where noted in one case in this analysis, a trail designated for vehicles greater than 50" in width would allow UTVs, jeeps, and other full-sized vehicles, although this trail may not be engineered for all vehicles. The MVUM designation would be "Trails Open to All Vehicles."

- *Single Track Motorized Trail* refers to trails where authorized OHVs are limited to in-line 2-wheeled vehicles such as motorcycles or e-bikes. The MVUM designation would be "Trails Open to Motorcycles."
- *E-bike (Class 1 Pedal Assist)* is defined for the purposes of this analysis as an in-line 2-wheeled vehicle with fully operable pedals, an electric motor that produces less than one horsepower that is only activated through pedaling action, and motor-assistance disengages at speeds above 20 mph. E-bikes trails would be listed on the MVUM as a "Special Designation."

Roads, Over-Ground Travel

Each road will be designated by vehicle class and season of use (*36 CFR 212 Subpart B*). For proposed designated road uses by alternative, see Table 4-1 and Figures 4-1 through 4-4. The regulations would apply to public use of vehicles on open FS system roads; public motorized or mechanized use of closed system and unauthorized non-system roads or cross-country over-ground travel is not permitted in the watershed per the legislation. Over-snow use is discussed below.

Designated roads by vehicle class and season of use will be displayed on a Motor Vehicle Use Map (MVUM) and uses the following terminology for roads in its legend:

- *Roads Open to Highway Legal Vehicles*. These roads are open to motor vehicles only of the type licensed under state law for general operation on all public roads within the state. These roads are also commonly referred to as "no mixed use." The MVUM designation would be "Roads Open to Highway-Legal Vehicles Only." Non-motorized vehicles, horse, and foot traffic are allowed as well.
- *Roads Open to All Vehicles*. These roads are open to all motor vehicles including full-sized vehicles, OHVs, motorcycles, and e-bikes. Non-motorized vehicles, horse, and foot traffic are allowed as well. This category is also commonly referred to as "mixed use" and includes most of the open roads in the watershed. The MVUM designation would be "Roads Open to All Motor Vehicles."
- *Special Vehicle Designation*. These roads are open to specific classes of motor vehicles designated specifically for a particular road, other than the two preceding general categories. The MVUM designation would be "Special Vehicle Designation."
- *Seasonal Designation*. A grey highlight symbol used in conjunction with other road symbols indicates that the road is open only during certain times of the year. Seasons of use in this Hermosa Plan would apply to both motorized and mechanized vehicles, but not to horse and foot traffic.
- *Dispersed Camping*. A symbol of dots paralleling a designated road indicates that limited cross-country motor vehicle use within 300 feet of that road is permitted for dispersed camping. Rules for driving for dispersed camping in this Hermosa Plan would apply to both motorized and mechanized vehicles, but not to horse and foot traffic.

Closed Maintenance Level 1 system roads will not display on the MVUM.

Key Proposals Affecting Public Use of Roads

Seasonal Closures

The Travel Rule requires the publication of an MVUM which specifies not only the designated motor vehicle classes, but also the designated time of year that roads are open. For the Hermosa Plan, all action alternatives include the provision that **seasonal closures would apply to mechanized as well as motorized uses; this includes bicycles**. The reasons that bicycles are included in the seasonal closures is that the Hermosa watershed was identified by Congress as a special landscape needing extra protection; the legislation did not differentiate between motorized and mechanized vehicles. Seasonal closure of the roads to all vehicles will help

protect the watershed from erosion, will help protect wildlife during critical months, and will help protect the capital investment of the road itself.

May 1 is proposed as the spring date to open all roads across the watershed under all action alternatives. The FS recognizes that there is a variety of site-specific conditions that affect road conditions, including annual and long-term weather patterns, aspect, tree cover, and elevation; however, the proposed opening date is based on average conditions in typical years. By choosing one date and adhering to it annually, both the public and land managers would have the same expectations, there would be less confusion and frustration resulting from unpredictability. This date is consistent with current management.

November 14 is the fall closing date in all alternatives for the road network that is accessed from Highway 550 through the ski area, including the east end of 578, 579, 580, and 581. These roads are closed when the ski area starts making snow and preparing for winter operations, because the main road access passes through the ski permit area and segments of the road are used as a ski run. This date is based on ski area operations and cannot be later in the season. ***In Alternative 4***, this closing date is proposed for *all* roads in the watershed except Lower Hermosa; in contrast, ***Alternatives 2 and 3*** propose that roads that can be accessed from the west through the Dolores Ranger District (Hotel Draw 550 and the west end of 578 from Bolam Pass) are left open until November 30 to allow longer access during years with later snowfall. Under ***Alternative 1***, closing dates are currently unclear or non-existent in the portion of the watershed west of the ski area.

December 31 is proposed as the date to close Lower Hermosa Road 576 under all action alternatives. This date is proposed in order to allow the road to continue to be used until the end of the year because it is a popular Christmas tree cutting area and the lower elevation usually remains dry enough to allow use through this timeframe. This is a change from the current condition (***Alternative 1***), in which the road has no official closure date.

Mixed Use Restriction

Most roads will appear on the MVUM as "Open to All Motor Vehicles," which means mixed use is allowed. *Mixed use* refers to the operation of unlicensed, non-highway legal motorized vehicles (OHVs such as ATVs, UTVs, and unlicensed motorcycles) on Forest roads that are open to licensed highway legal vehicle use. Where the Responsible Official proposes to depart from state traffic law or change current travel management direction by authorizing motorized mixed use on a National Forest System road where it would otherwise be prohibited, that decision must be informed by an engineering analysis conducted by a qualified engineer. An engineering analysis of mixed use has been conducted for key roads in this landscape. This engineering analysis evaluated road characteristics such as horizontal and vertical alignment, sight distance and roadside conditions, traffic characteristics such as volume, type, speed, driver traits, and accident history. The analysis resulted in an assessment of the crash risk in terms of probability and severity and identified mitigation measures that could be employed to reduce this crash risk. In the Hermosa Creek Watershed project area, the engineering analysis recommends that the segment of Forest Road 578 from Highway 550 to the junction with the Elbert Creek Road 581 should not allow motorized mixed uses under ***Alternatives 2-4***. This would be a change from

current management (***Alternative 1***), which allows motorized mixed uses on all open roads in the watershed, except within the two existing campgrounds.

In ***Alternatives 2 and 3***, in order to facilitate the proposed mixed use restrictions, an OHV staging area is proposed to be built in the vicinity of the Elbert Creek Road 581 junction. ***Alternative 3*** also includes the possibility of an OHV bypass route from the ski area base to the proposed staging area, although an alignment has not yet been determined. Restriction of mixed uses would only apply to motorized vehicles; bicycle, foot, and horse traffic would be allowed on any open Forest road.

Campsite Spurs

Currently, management within the watershed follows the so-called "300 foot rule." The "300 foot rule" means that driving a vehicle off-road up to 300 feet for the purposes of dispersed camping is allowed, as long as resource damage is not occurring. All action alternatives propose to eliminate the "300 foot rule" along the Hermosa Park Road 578 and instead, to designate many of the existing user-made routes to traditional campsites as system roads. The proposal would allow parking a motorized or mechanized vehicle within one vehicle length of designated routes and spurs along 578. This would help prevent the proliferation of driving across meadows, along streambanks, or beyond the end of roads. There are ***slight differences between alternatives*** as to which campsite spurs would be designated. Additionally, there are three camp spurs longer than 300 feet off the Elbert Creek Road 581, and one off of the Relay Road 580 that would be designated in order to allow their continued use. See *Figures 4-1* through *Figure 4-4*. Because they are so short, the differences in camp spur designations are difficult to display at a scale appropriate for a written document. However, the differences between alternatives can be provided in more detail upon request.

Creek Crossings

Currently there are two road low-water crossings, or fords, of creeks in the Hermosa Creek watershed. One is where Forest Road 577 crosses the East Fork of Hermosa Creek to reach the upper Hermosa trailhead, and the other is where Forest Road 578 crosses the main stem of Hermosa Creek, about 1.5 miles north of the trailhead. ***Alternatives 2 and 3*** propose to install full-sized road crossing structures at both of these locations. The structures could be bridges, bottomless culverts, box culverts, or other types of structures that would allow for fish passage. ***Alternative 4*** proposes to remove the road crossing at the trailhead altogether and replace it with an OHV-width bridge allowing access to the trail. ***Alternative 4*** does not propose to change the ford on Road 578.

Tin Can Basin Road 578B

The ultimate disposition of the Tin Can Basin Road 578B on the Columbine Ranger District will depend upon the travel management decision that will be made under the Rico-West Dolores Travel Management project. This is because the road crosses from the Columbine to the Dolores Ranger District. A segment of the road is also coincident with the currently motorized East Fork Trail, which discharges onto it on the Dolores Ranger District side. A segment is also coincident with the Colorado Trail. This Hermosa analysis has provided a range of alternatives for this particular road that correspond with the alternatives from the Dolores analysis; ***Alternative 1***

would keep the road open, ***Alternatives 2 and 3*** would convert the road to a single track motorized trail, and ***Alternative 4*** would convert it to a non-motorized trail.

Total mileage of roads in the watershed, by usage type and alternative is displayed in Table 4-5, below.

TABLE 4-1. Public Road Use by Alternative (Over-ground)

Road Name	Alt 1 - Current Condition (no mechanized restrictions)	Over-ground Motorized & Mechanized Regulations		
		Alt 2 – Proposed Action	Alt 3	Alt 4
577 Hunter Park (to upper trailhead)	Seasonal dates unclear low water crossing of E.Fork	Open 5/1-11/30 Full bridge/fish passage structure	Open 5/1-11/30 Full bridge/fish passage structure	Open 5/1-11/14 close road south of creek, (OHV trail bridge/fish passage structure)
578 Hermosa Park & short spurs	Open 5/1-11/14 through ski area	Open 5/1-11/14 Hwy 550 to trailhead. New gate just east of trailhead.	Open 5/1-11/14 Hwy 550 to trailhead. New gate just east of trailhead.	Open 5/1-11/14 Hwy 550 to Bolam Pass.
	Seasonal dates unclear west of the ski area	Open 5/1-11/30 trailhead to Bolam Pass. New gate at Bolam.	Open 5/1-11/30 trailhead to Bolam Pass. New gate at Bolam.	Open 5/1-11/14 Hwy 550 to Bolam Pass. New gate at Bolam.
	No mixed use restrictions, open to all vehicles.	No mixed uses from Hwy 550 to Elbert Creek Rd; OHV staging area built.	No mixed uses from Hwy 550 to Elbert Creek Rd; possible OHV bypass to ski area base OHV staging area built.	No mixed uses from Hwy 550 to Elbert Creek Rd.
	low water crossing of creek	Bridge/fish passage structure	Bridge/fish passage structure	low water crossing
578B Tin Can Basin	Open 5/1-11/14	Close road near beginning, convert to single track motorized trail (managed by Dolores RD)	Close road near beginning, convert to single track motorized trail (managed by Dolores RD)	Close road near beginning, convert to non-motorized trail
579 Cascade Divide & 580/580G Relay Creek	Open 5/1-11/14	Open 5/1-11/14; add 1 short camp spur	Open 5/1-11/14; add 1 short camp spur	Open 5/1-11/14; add 1 short camp spur
581 Elbert Creek	Open 5/1-11/14	Open 5/1-11/14; Add 2 short camp spurs	Open 5/1-11/14; Parking area at end; Add 2 short camp spurs	Open 5/1-11/14; Add 2 short camp spurs
698 Sig CG	Open 5/1-11/14; No mixed use.	Open 5/1-11/14	Open 5/1-11/14	Open 5/1-11/14
550 Hotel Draw	Open 5/1-11/14	Open 5/1-11/30. New gate at district boundary.	Open 5/1-11/30. New gate at district boundary.	Open 5/1-11/14
576 Lower Hermosa	Open year-round	Open 5/1-12/31. New gate at Forest boundary.	Open 5/1-12/31. New gate at Forest boundary.	Open 5/1-12/31. New gate at Forest boundary.
576A Lower Hermosa CG	Open year-round; No mixed use.	Open 5/1-12/31; No mixed use.	Open 5/1-12/31; No mixed use.	Open 5/1-12/31; No mixed use.

FIGURE 4-1. Over-Ground Travel Management. ***Alternative 1***

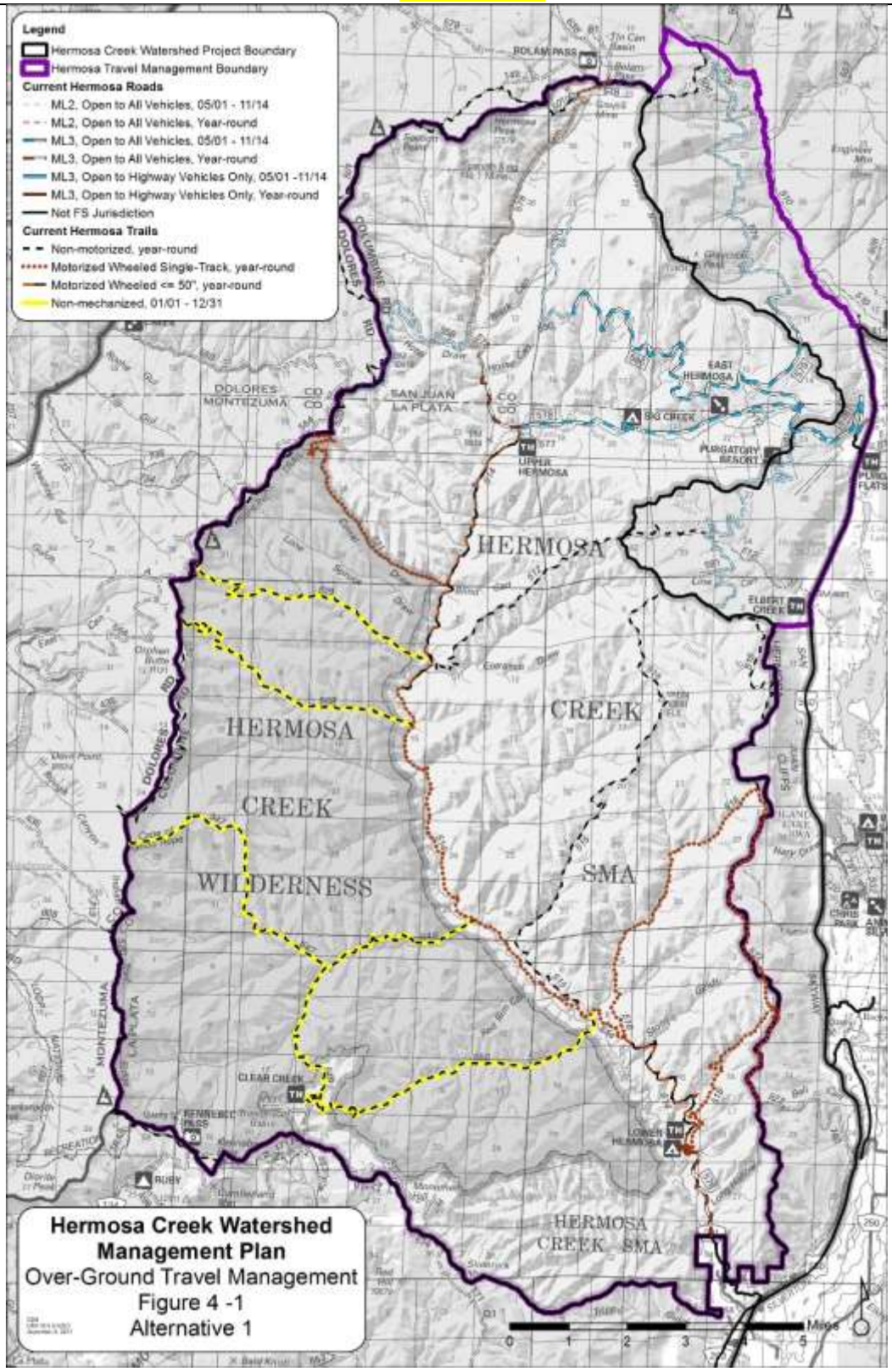


FIGURE 4-2. Over-Ground Travel Management. ***Alternative 2- Proposed Action***

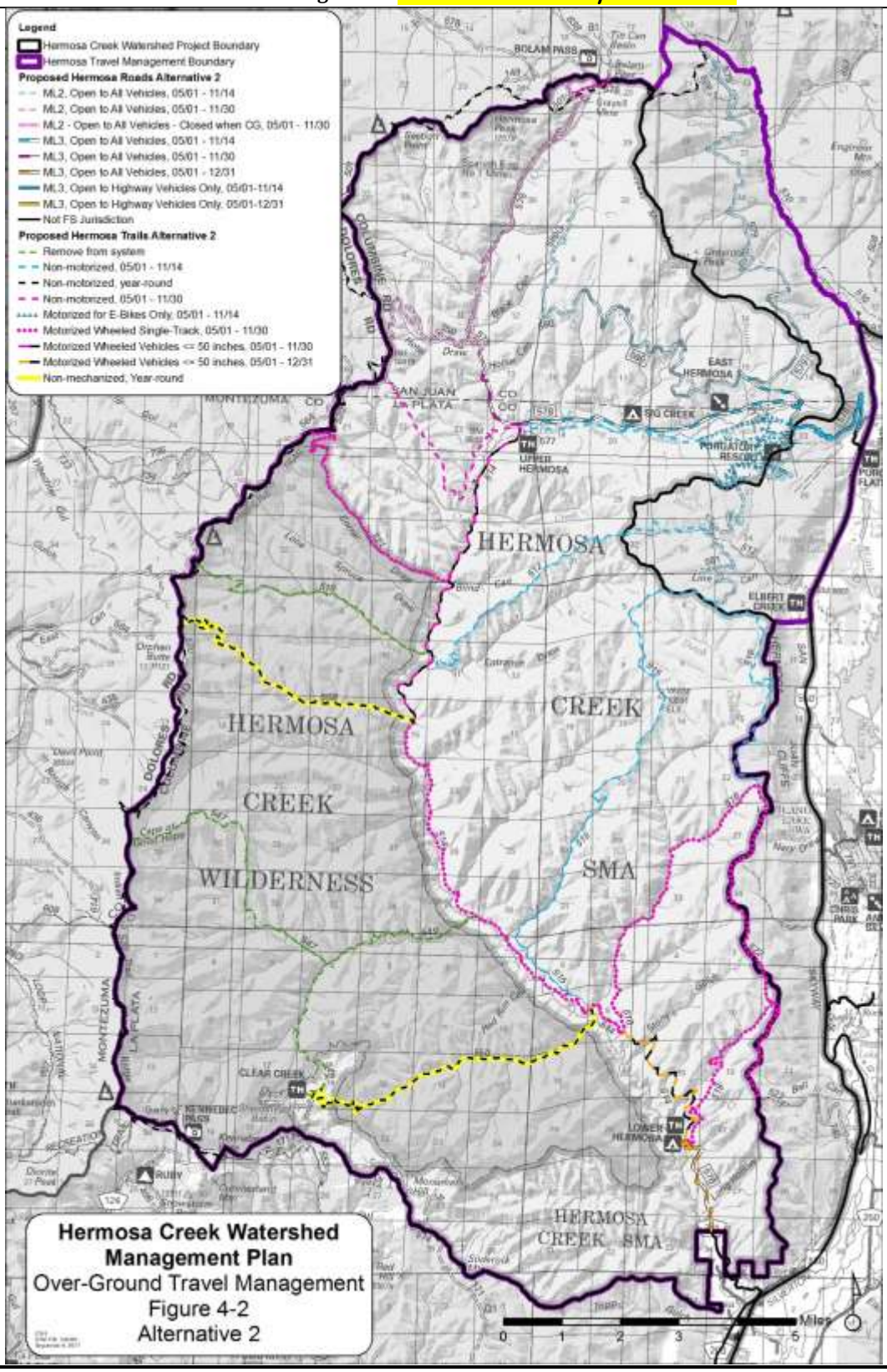


FIGURE 4-3. Over-Ground Travel Management. ***Alternative 3***

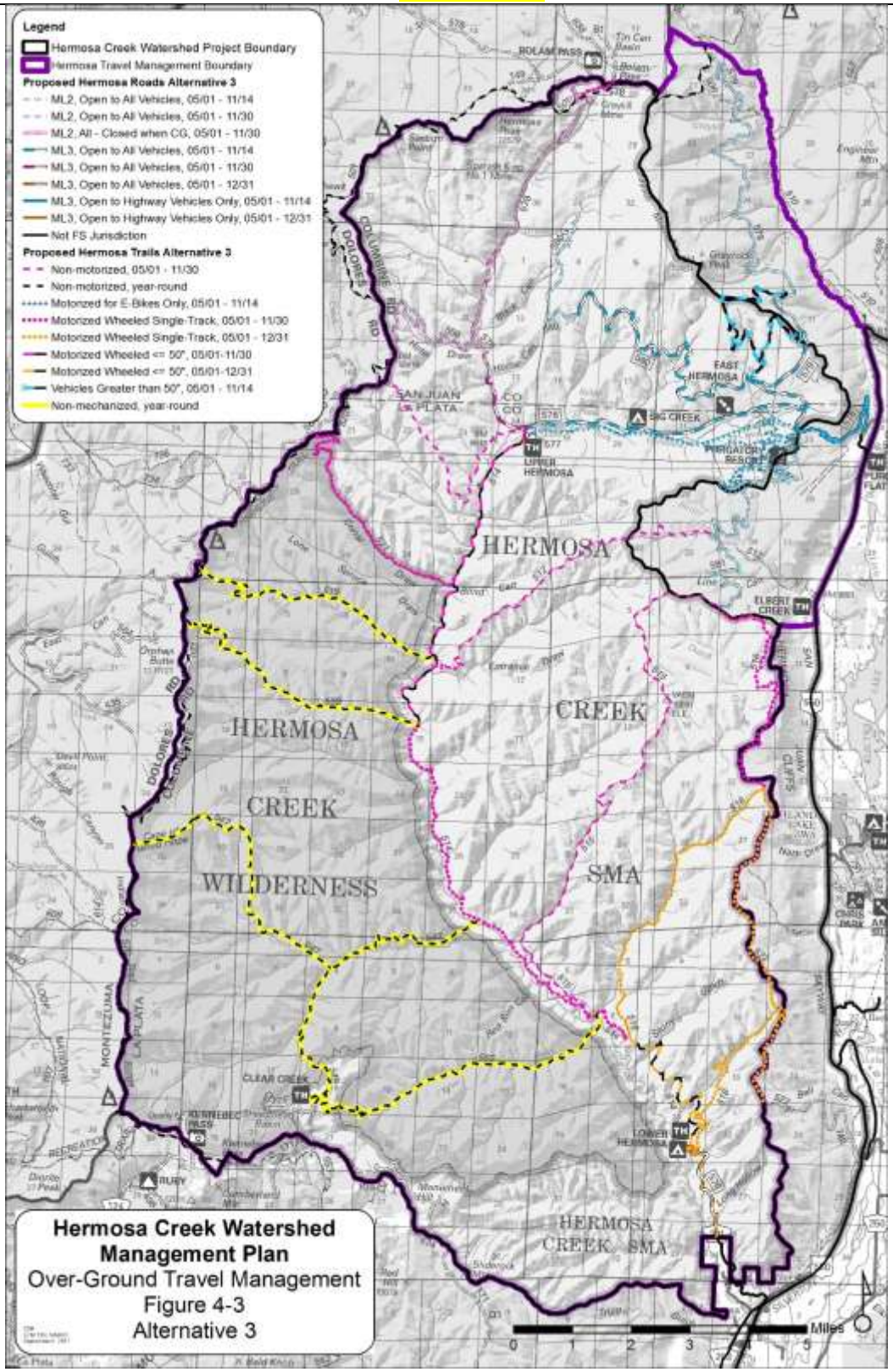
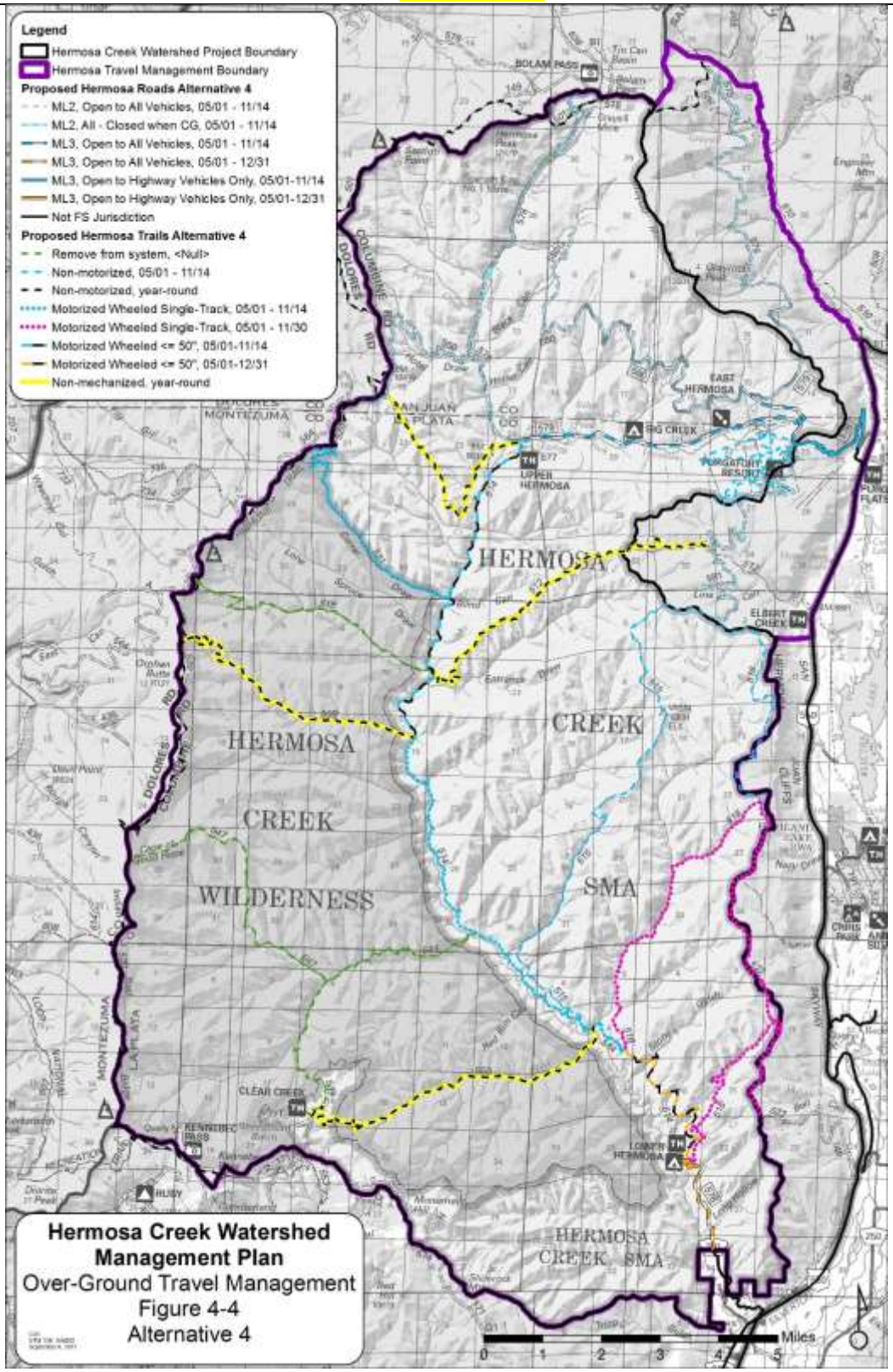


FIGURE 4-4. Over-Ground Travel Management. ***Alternative 4***



Key Administrative Proposals for Roads

Travel management regulations at 36 CFR 212.5(b)(1) and (2) (*Subpart A*) require that the FS identify the minimum road system needed for safe and efficient travel for administration, utilization, and protection of National Forest System Lands, and to identify roads that are no longer needed to meet forest resource management objectives. Table 4-2 and Figures 4-5 through 4-8 display the proposed minimum road system and maintenance levels by alternative.

Maintenance Levels

Maintenance Levels (ML) define the level of service provided by, and maintenance required for, a specific road, and are described as follows (*FSH 7709.59*). ML1 roads do not display on the MVUM as open to motor vehicle use while ML2-5 will display on the MVUM as open to all vehicles unless specifically noted.

> ML1 - Roads that have been placed in storage between intermittent uses. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. These roads are not shown on motor vehicle use maps.
>
> ML2 - Roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations. Warning signs and traffic control devices are generally not provided. Motorists should have no expectations of being alerted to potential hazards while driving these roads. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses.
>
> ML3 - Roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Warning signs and traffic control devices are provided to alert motorists of situations that may violate expectations. Roads in this maintenance level are typically low speed with single lanes and turnouts.
>
> ML4 - Roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Warning signs and traffic control devices are provided. .Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated.
>
> ML5 - Roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated.

The Sig Creek Campground Road 698 is proposed to be downgraded from ML3 to an ML2 dispersed campsite spur in ***Alternatives 2 and 4*** because the developed campground is proposed to be decommissioned in those alternatives, but the road would be left open. ***Alternatives 1 and 3*** would leave the road as an ML3 to coincide with the proposal to retain the campground under those alternatives.

Alternatives 2 and 3 proposed to raise the maintenance level of Hunter Park Road 577 from ML2 to ML3 to coincide with development of a campground under those alternatives.

Road 578 is proposed to remain an ML3 between the trailhead and the creek crossing in ***Alternatives 1, 2 and 3*** so that the road will receive a higher level of maintenance and gravel surfacing where it is immediately adjacent to the creek. ***Alternative 4*** proposes to reduce the maintenance level to ML2 between the trailhead and the creek crossing (1.5 miles) in order to reduce maintenance costs.

Roads 579 and 580 are proposed in ***Alternatives 2 and 4*** to be lowered to ML2 past their junction in order to reduce maintenance costs, while in ***Alternatives 1 and 3***, they would remain as ML3s.

Minimum Road System

The minimum road system is the system needed for safe and efficient travel and for administration, utilization, and protection of FS lands. The minimum road system results from travel management decisions informed by a travel analysis which examines key issues related to the Forest transportation system as well as management options and priorities.

The District underwent a travel analysis process in 2011 that rated roads and motorized trails according to a consistent set of risk/benefit rating criteria and resulted in recommendations for each route. The rankings for the motorized routes in the project area were updated in 2017 based on new information and new circumstances, most notably the new designation of the Special Management Area, the wilderness, and the purposes, prohibitions, and requirements that were included in the Hermosa Creek legislation. The Travel Analysis Process (TAP) for this project is located in the project file or available upon request. Alternative 2 carries forward recommendations from the TAP, with slight variations in the other action alternatives, as described below.

Removing many currently closed ML1 system roads from the system is proposed in ***Alternatives 2 and 4***. The mileage that would be removed varies by alternative, with ***Alternative 4*** having the most miles removed. ***Alternatives 1 and 3*** would retain all current system roads.

Alternatives 2 and 3 propose to add a few miles of unauthorized non-system road to the system as closed ML1 roads in order to meet the needs of future vegetation management. These short segments are existing roadbeds that are currently not system roads in the Harris Cabin, Elbert Creek, Relay Road, and Butler Creek areas.

Removing the Hunter Park Road 577 south of the creek from the system is being proposed under ***Alternative 4*** because the trailhead is proposed to be moved in that alternative and that segment of road would no longer be necessary.

Addition of some dispersed campsite spurs as designated ML2 roads is being proposed under all action alternatives, in slightly differing amounts, in order to allow vehicle access to some historically used camp sites in locations where driving off-road is proposed to be prohibited.

See Table 4-2 for details on differences in mileages between alternatives.

TABLE 4-2. Minimum Road System and Maintenance Levels by Alternative

Maintenance Level	**Alt 1. Current Condition**	**Alt. 2 Proposed Action**	**Alt. 3**	**Alt. 4**
ML1s	126 miles	69 miles • 60 miles removed; • 3 miles added	132 miles • Keep all existing • 6 miles added	62 miles • 63 miles removed
ML2s	35 miles	44 miles • 2.06 miles dispersed campsite spurs added • 698 Sig CG changed ML3 to ML2 • 577 changed ML2 to ML3 • 579 & 580 past junction changed ML3 to ML2	36 miles • 2.13 miles dispersed campsite spurs added • 577 changed ML2 to ML3	46 miles • 1.65 miles dispersed campsite spurs added • 698 Sig CG changed ML3 to ML2 • 577 removed south of creek • 578 past trailhead changed ML3 to ML2 • 579 & 580 past junction changed ML3 to ML2
ML3s	22 miles	14 miles • 698 Sig CG changed ML3 to ML2 • 577 changed ML2 to ML3 • 579 & 580 past junction changed ML3 to ML2	22 miles • 577 changed ML2 to ML3	12 miles • 698 Sig CG changed ML3 to ML2 • 577 removed south of creek • 578 past trailhead changed ML3 to ML2 • 579 & 580 past junction changed ML3 to ML2
Total Miles Minimum Road System (ML1-ML3)	**~183 miles**	**~127 miles**	**~190 miles**	**~120 miles**

FIGURE 4-5. Minimum Road System. ***Alternative 1***

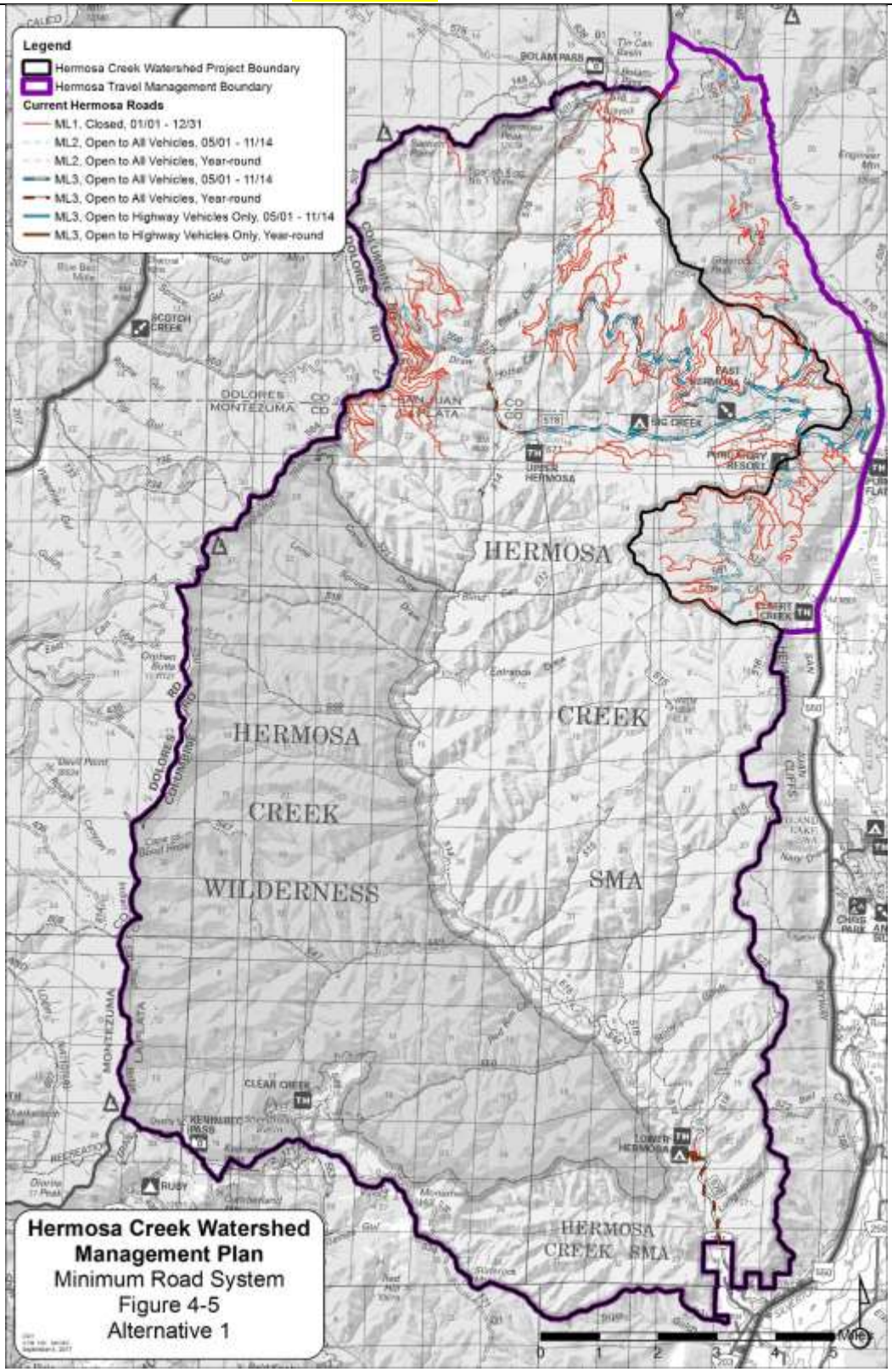


FIGURE 4-6. Minimum Road System. ***Alternative 2- Proposed Action***

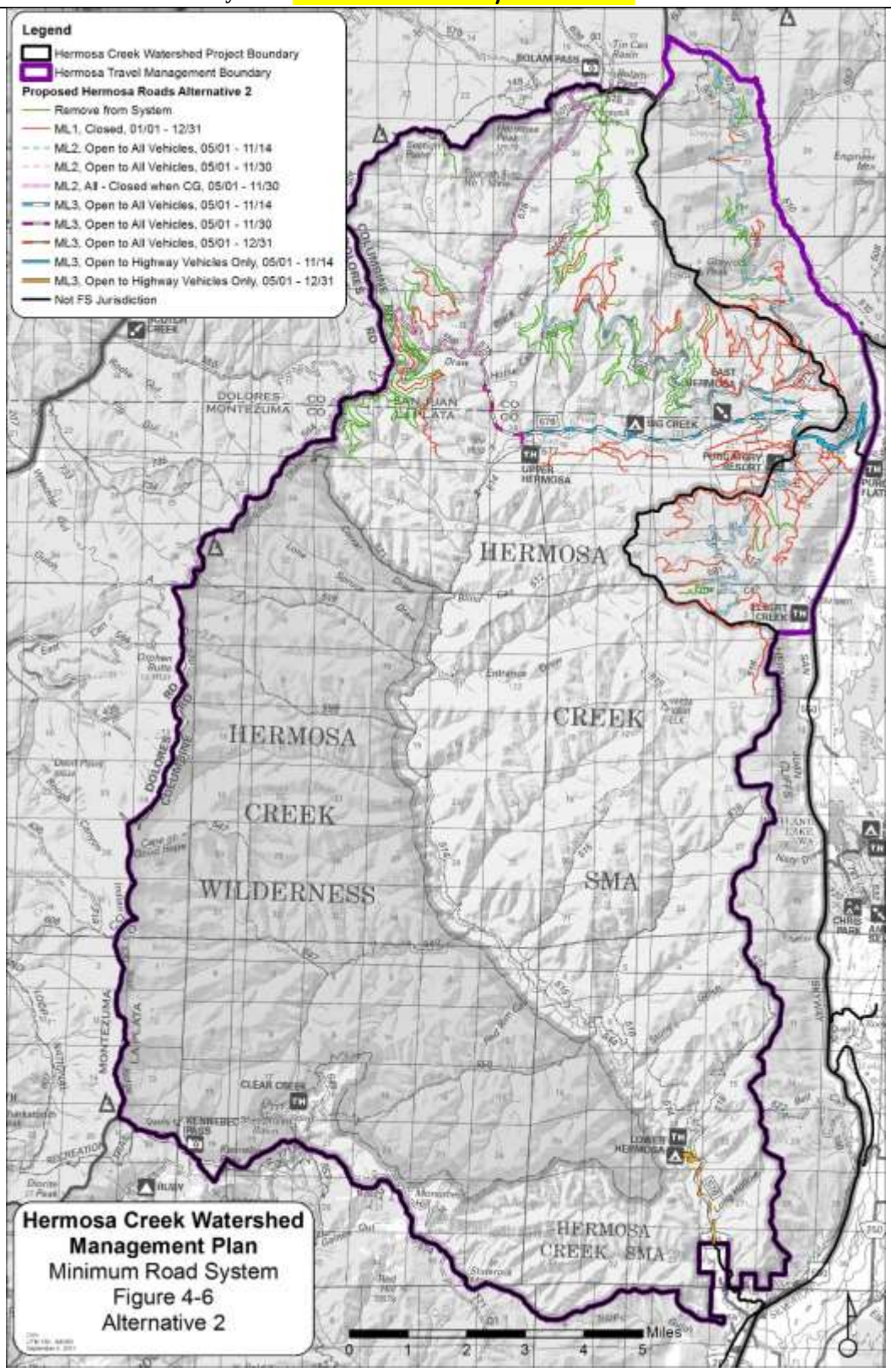


FIGURE 4-7. Minimum Road System. ***Alternative 3***

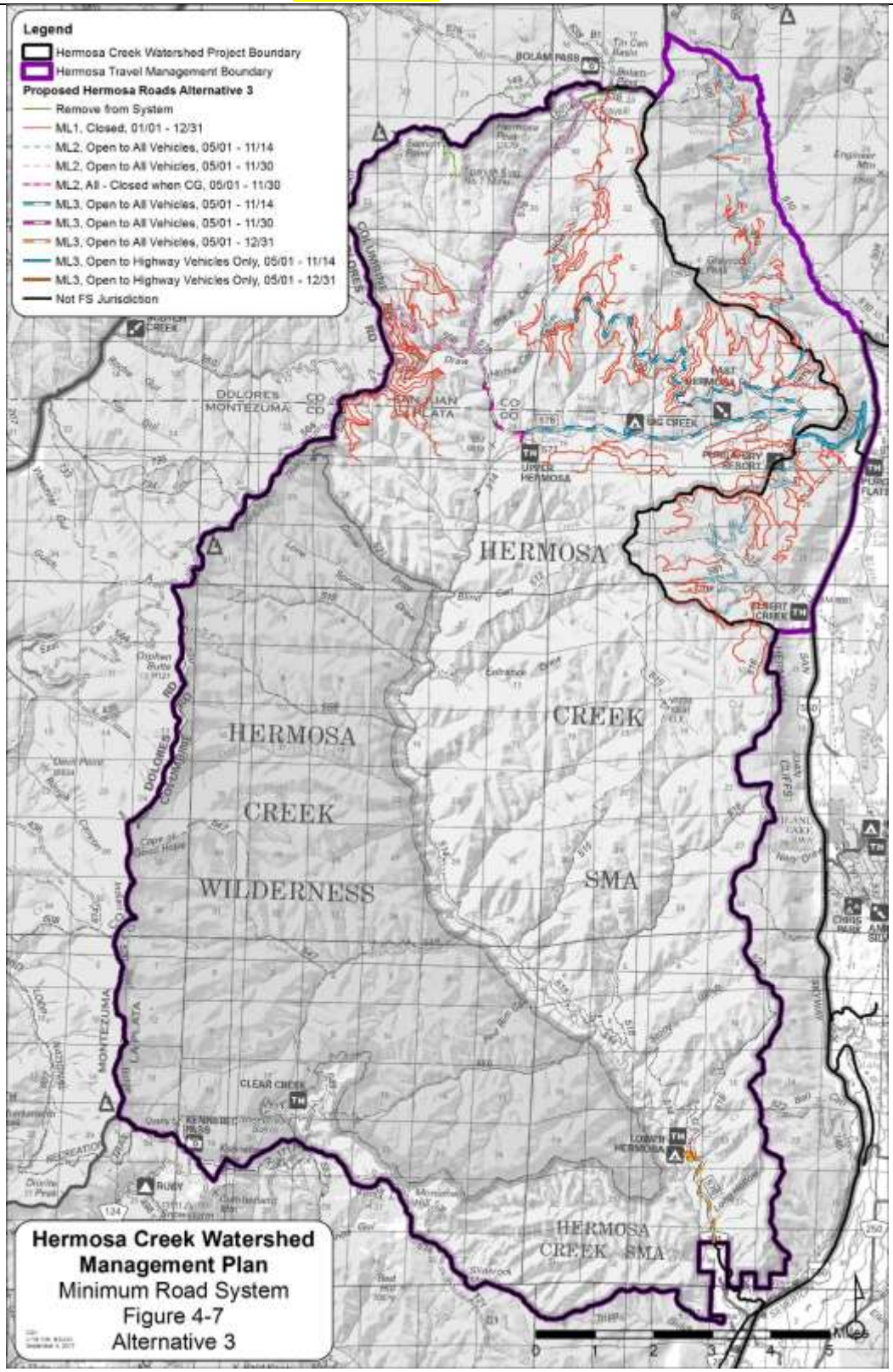
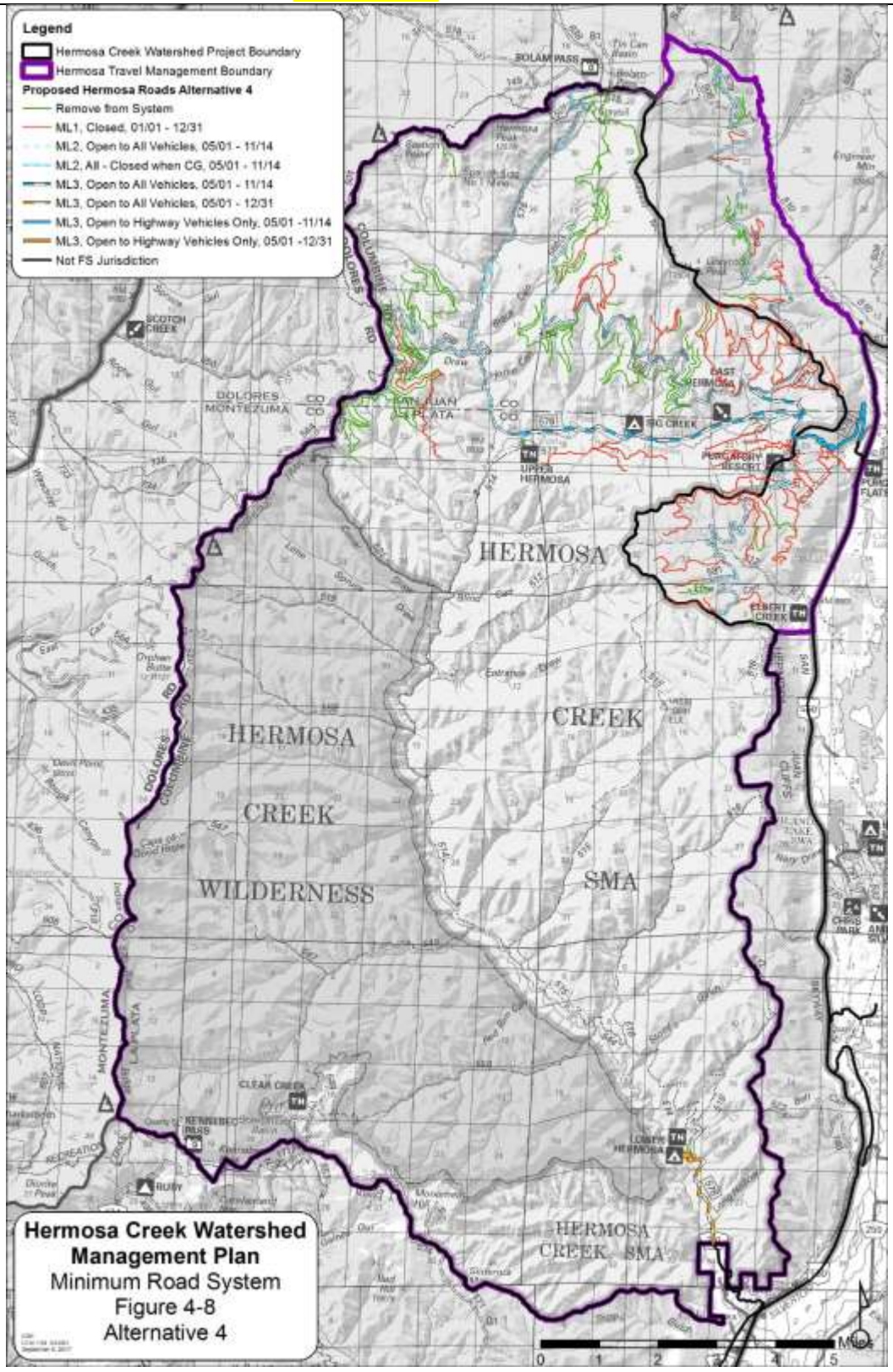


FIGURE 4-8. Minimum Road System. ***Alternative 4***



Trails, Over-Ground Travel

Each trail will be designated by authorized vehicle type and season of use (*36 CFR 212 Subpart B*). For proposed designated trail uses by alternative, see Figures 4-1 through 4-4 and Table 4-3. The regulations would apply to public use of vehicles on FS trails; public motorized or mechanized use of unauthorized non-system trails or cross-country over-ground travel is not permitted in the watershed. Authorized OHVs must be wheeled and 50" wide or less for use on designated motorized trails, unless otherwise noted. Over-snow use is discussed below.

Designated motorized trails, type of use, and season of use will be displayed on an MVUM and uses the following terminology for trails in its legend:

- *Trails open to Wheeled Vehicles 50" or Less in Width*. These trails are open to motor vehicles only of the type that are wheeled (no tracks) and less than 50 inches in width at the widest point on the vehicle. This includes e-bikes. These trails are often referred to as OHV trails or ATV trails. Non-motorized vehicles, horse, and foot traffic are allowed as well.
- *Trails open to Motorcycles Only.* These trails are open to motorized vehicles of the in-line, 2-wheeled type only. This includes motorcycles and e-bikes. These are also commonly referred to as single track motorized trails. Non-motorized vehicles, horse, and foot traffic are allowed as well.
- *Special Vehicle Designation*. These trails are open to specific classes of motor vehicles designated specifically for a particular trail, other than the two preceding general categories. For example, different alternatives in this EA propose several special designations:
    - Trails open to motorized use only by e-bikes.
    - Trails open to wheeled motor vehicles greater than 50 inches in width.
- *Seasonal Designation*. A grey highlight symbol used in conjunction with other trail symbols indicates that the trail is open only during certain times of the year. Seasons of use in this Hermosa Plan would apply to both motorized and mechanized vehicles, but not to horse and foot traffic.

Non-motorized trails will not display on the MVUM.

Key Proposals Affecting Public Use of Trails

Seasonal Closures

Currently there are no seasonal closures on any trail. All action alternatives would designate seasonal closures for motorized and mechanized use. **Seasonal trail closures would apply to mechanized as well as motorized uses, which includes bicycles.** Seasonal closure to vehicles would help meet the purposes of the legislation of preserving and balancing the resources and uses of the watershed; the Hermosa legislation did not differentiate between motorized and mechanized vehicles. Seasonal closures to all vehicles would also help to protect wintering big game and to protect trail surfaces during muddy fall and spring conditions.

Seasonal dates proposed for each trail under each action alternative vary. The differences in trail dates across alternatives reflect the same proposed seasonal closure dates for the roads that are used to access the trails. See the discussion of road dates, above.

An exception to the proposed seasonal closure dates on trails is that the Colorado Trail would not have any seasonal closure dates. This is because the segments that are part of this analysis are only a part of a much longer destination trail that begins and ends outside of the project area; therefore it would not make sense to have seasonal closure dates on a small segment in the middle.

Adding to or Subtracting from Trail System

All action alternatives propose to add the West Cross Trail to the FS system in order to bring it under FS management (about 4.7 miles). The trail was built as a wagon road, and therefore has a well-built, sustainable tread on a good grade; it would not require much maintenance. By bringing it on the system, the FS can maintain it, monitor its use, and protect the historical features of it.

Alternatives 2 and 3 propose to re-route an approximately 0.6 mile segment of the Colorado Trail at Tin Can Basin so that the trail is segregated from motorized use of the East Fork Trail that would occur on the existing alignment under those two alternatives (the ultimate disposition of the East Fork Trail will depend on the travel management decision that will be made under the Rico-West Dolores Travel Management project).

The proposal to add a complex of about 10 miles of existing trails within Purgatory ski area to the FS system results from the legislation. There is a requirement in the legislation for all mechanized use within the SMA to occur on designated trails; therefore, all action alternatives include the proposal to add them to the system. Only those trails permitted to Purgatory for mechanized use *within the SMA* are of concern at this time (the "backside" of the ski area); trails outside of the SMA (the "frontside") are not being discussed in this Plan.

All action alternatives propose to add the existing unauthorized Cutthroat Trail to the system, which is about 3.3 miles long. This trail parallels the East Fork of Hermosa Creek on the south side of the creek and would provide a beginner connector trail from the ski area trail complex to the main Hermosa Creek Trail, and would allow bicycles to avoid riding on the Hermosa Park Road 578. The trail would be named the "Cutthroat Trail" in honor of the Colorado River cutthroat trout reintroduction efforts that are currently ongoing in the watershed. ***Alternative 2*** proposed that e-bikes would be allowed on the eastern segment within the ski area, while ***Alternative 3*** proposes that e-bikes would be allowed on its entire length. ***Alternative 4*** proposes that only the eastern segment would be added to the system and it would be non-motorized.

Alternative 3 proposes to add a motorized trail loop of about 7 miles for vehicles >50" in width on some closed ML1 logging roads in the Pasture Creek area. While this would not provide much mileage, it would provide a small opportunity for side-by-side type OHVs and jeeps to drive on trails instead of roads.

Alternatives 2 and 4 propose to remove about 18 miles of the Big Bend, South Fork, and Neglected Trails from the FS system because those trails are extremely under-utilized for most of the year. The FS has not maintained them satisfactorily in the past, and cannot commit to future maintenance, due to declining budgets and difficulty of access. Additionally, these trails are in the wilderness, where there is an expectation of a primitive experience with less maintained trails. Corresponding to the removal of the South Fork Trail from the system would be the removal of its bridge over Hermosa Creek.

Changes to Type of Use

Proposed authorization of motorized use on the upper Dutch/Pinkerton Trail under ***Alternative 3*** would provide a replacement for the Clear Creek Trail motorized use which was lost when the wilderness was designated. The majority of the proposed new motorized segment would fall on an old roadbed, which is easily maintained and would create little new surface disturbance. Additionally, authorizing this segment for motorized use would create large motorized loop options. ***Alternatives 1, 2 and 4*** propose to maintain the non-motorized designation.

Alternative 4 proposes to designate the Elbert Creek Trail above the Elbert Creek Road, Big Lick Trail and West Cross Trail as non-mechanized in order to provide some trails outside of wilderness which would have only foot and horse traffic. This would provide opportunities for hikers and horseback riders to have the more primitive experience directly from trailheads that are easily accessed. ***Alternatives 1, 2 and 3*** do not propose to restrict bicycles on these trails.

Alternatives 2 and 3 propose to designate the Purgatory complex of trails for motorized use by class 1 e-bikes. The demographics of many of the ski area clients are such that they would benefit from pedal-assist bikes, because they are often from lower elevations, infrequent mountain bikers, and are either older or have young children. This would give the FS an opportunity to evaluate a new technology and its impacts in a mostly self-contained trail system.

Total mileage of trails in the watershed, by usage type and alternative is displayed in Table 4-5, below.

TABLE 4-3. Public Trail Use by Alternative (Over-ground)

Trail Name	**Alt. 1 Current Condition (no mechanized restrictions)**	**Over-ground Motorized & Mechanized Regulations**		
		Alt. 2 Proposed Action	**Alt .3**	**Alt. 4**
514 Hermosa Creek	Open year-round. Motorized - part single-track & part OHV; Mechanized.	Lower stretch open 5/1-12/31; Upper stretch open 5/1-11/30. Motorized - part single-track & part OHV; Mechanized.	Lower stretch open 5/1-12/31; Upper stretch open 5/1-11/30. Motorized - part single-track & part OHV; Mechanized.	Lower stretch open 5/1-12/31; Upper stretch open 5/1-11/14. Motorized - part single-track & part OHV; Mechanized.
	(road ford @ upper trailhead)	(road bridge)	(road bridge)	Add <50" trail bridge
518 Jones Creek	Open year-round; Motorized single track.	Open 5/1-11/30; Motorized single track; Mechanized.	Open 5/1-12/31; Motorized single track; Mechanized.	Open 5/1-11/30; Motorized single track; Mechanized.
516 Dutch Creek	Open year-round. Motorized single track.	Open 5/1-11/30; Motorized single track; Mechanized.	Open 5/1-12/31; Motorized single track; Mechanized.	Open 5/1-11/30; Motorized single track; Mechanized.
522 Pinkerton	Open year-round. Motorized single track.	Open 5/1-11/30; Motorized single track; Mechanized.	Open 5/1-12/31; Motorized single track; Mechanized.	Open 5/1-11/30; Motorized single track; Mechanized.
XXX Upper Dutch/ Pinkerton	Open year-round. Non-motorized	Open 5/1-11/14; Non-motorized; Mechanized.	Open 5/1-11/30. Motorized single track; Mechanized. Parking area at Strawberry Patch.	Open 5/1-11/14; Non-motorized; Mechanized.
512 Elbert Creek (west of Elbert Creek, Rd.)	Open year-round. Non-motorized	Open 5/1-11/14; Non-motorized; Mechanized.	Open 5/1-11/30; Non-motorized; Mechanized.	Open year round; Non-motorized & Non-mechanized
XXX Big Lick	Open year-round. Non-motorized	Open 5/1-11/14; Non-motorized; Mechanized.	Open 5/1-11/30; Non-motorized; Mechanized.	Open year round; Non-motorized & Non-mechanized
515 Little Elk	Open year-round. Non-motorized	Open 5/1-11/14; Non-motorized; Mechanized.	Open 5/1-11/30; Non-motorized; Mechanized.	Open 5/1-11/14; Non-motorized; Mechanized.
XXX West Cross	Non-system.	Open 5/1-11/30; Non-motorized; Mechanized.	Open 5/1-11/30; Non-motorized; Mechanized.	Open year-round Non-motorized & Non-mechanized
521 Corral Draw	Open year-round. Motorized single track.	Open 5/1-11/30. Motorized single track; Mechanized.	Open 5/1-11/30. Motorized single track; Mechanized.	Open 5/1-11/14. Motorized single track; Mechanized.

Trail Name	**Alt. 1 Current Condition (no mechanized restrictions)**	**Over-ground Motorized & Mechanized Regulations**		
		Alt. 2 Proposed Action	**Alt .3**	**Alt. 4**
501, 507, 520, 622 Colorado Trail	Open year-round. Some segments motorized single track.	Open year-round. Mechanized; Add parallel CT at Tin Can Basin Road making entire length non-motorized.	Open year-round. Mechanized; Add parallel CT at Tin Can Basin Road making entire length non-motorized.	Open year-round. Mechanized; (Road would be closed, making parallel trail unnecessary)
Purg. Trails Complex	Non-system under permit for summer season.	Open 5/1-11/14. Motorized for class 1 e-bikes only; Mechanized.	Open 5/1-11/14. Motorized for class 1 e-bikes only; Mechanized.	Open 5/1-11/14. Non-motorized; Mechanized.
XXX Cutthroat	Non-system	Open 5/1-11/14. Non-motorized western portion; Motorized for class 1 e-bikes only, eastern portion; Mechanized.	Open 5/1-11/14. Motorized for class 1 e-bikes only; Mechanized.	Western portion Non-system (closed), eastern portion would part of the Purgatory trails complex.
XXX Pasture Creek Loop	Not open to public	Not open	Open 5/1-11/14. >50" motorized trail; Mechanized.	Not open
Wilderness Trails				
519 Big Bend, 547 Neglected, 549 S. Fork	Open year-round. Non-motorized & Non-mechanized	Remove from system; Remove bridge at S.Fork.	Open year-round. Non-motorized & Non-mechanized.	Remove from system; Remove bridge at S.Fork.
559 Salt Creek, 550 Clear Creek	Open year-round. Non-motorized & Non-mechanized.	Open year-round. Non-motorized & Non-mechanized.	Open year-round. Non-motorized & Non-mechanized.	Open year-round. Non-motorized & Non-mechanized.

Over-Snow Travel

Over-snow motorized and over-snow mechanized travel is proposed to be designated by *area* for the Hermosa Plan (*36 CFR 212 Subpart C*). Criteria that were used to determine over-snow travel areas include: big game winter concentration areas, access for non-motorized users that could lead to user-group conflicts, sufficient snow cover in most years, and historical use patterns including permitted commercial use. Boundary mapping was made to follow topographic features on the ground that are apparent in the wintertime, such as drainage bottoms or ridgelines. Smaller-scale topography within larger areas (slope, cliffs, etc.) was *not* used as a criterion because it is impossible to delineate or enforce on the ground. Recognition was given that vehicle technology is evolving and areas once considered inaccessible are becoming accessible. Over-snow use and grooming that are regulated under permit may have restrictions within a designated area.

Key Proposals Affecting Public Over-Snow Use

Because the Hermosa Creek legislation requires designation of roads, trail, and areas for all motorized and mechanized vehicles, **over-snow travel regulations will apply to bicycles** as well as snowmobiles, tracked OHVs, tracked motorcycles, and other motorized over-snow vehicles.

Unlike over-ground travel, no seasonal closure dates are proposed for over-snow travel under Alternatives 1-3; rather, over-snow travel would be permitted any time there is adequate snow cover. Adequate snow cover means that unacceptable damage to underlying resources is not occurring. Alternative 4 proposes to allow motorized and mechanized over-snow use seasonally from 11/15-4/30 in the upper watershed area, which would coincide with the dates the roads would be closed. The small over-snow open area at the top of Junction Creek that is within the watershed would not have seasonal dates in any alternative, because its management should match the over-snow area outside of the watershed through which it is accessed.

There are three general areas that are proposed for designation to over-snow travel under all action alternatives: the Hermosa Park/Bolam Pass/Cascade Divide area, the Elbert Creek drainage, and the top of Junction Creek Road.

For this travel management analysis, areas to be designated for over-snow mechanized and motorized travel would be the same areas as those proposed as Hermosa Forest Plan amendment "over-snow suitable" areas; therefore, the maps for alternatives will not be repeated here; please refer to pages 35-37 in this EA.

Each alternative varies in the area that would be designated for over-snow vehicle use. ***Alternative 1*** would retain the area currently designated in the Forest Plan (15,371 acres). ***Alternatives 2 and 3*** would include a larger designated area, allowing for advancing equipment technologies and a maximum of riding opportunities (35,303 acres), including continued use by permitted outfitters and guides. ***Alternative 4*** would designate an area providing increased protection for vulnerable resources such as alpine and riparian areas, while considering existing uses (15,875 acres).

Dispersed Camping and Developed Recreation Facilities

Dispersed Camping is camping anywhere outside of a developed campground. Dispersed camping regulations are related to, but different than, vehicle use regulations. All action alternatives (Alternatives 2-4) propose that dispersed camping, by itself, be allowed anywhere within the watershed except along the Lower Hermosa Road 576. However, driving a vehicle off-road to a dispersed campsite is regulated separately.

Vehicle use for dispersed camping is part of the regulations being developed to comply with the Travel Management Rule (*36 CFR 212 Subpart B*). In some locations, the "300 foot rule" would still apply, and in other locations, it is proposed to be eliminated. Where eliminated, vehicle use for camping would be restricted to one vehicle length from designated routes.

Key Proposals Affecting Public Dispersed Camping and Facilities

In the Hermosa watershed, because motorized and mechanized vehicles are restricted to roads and trails by legislative requirement, **rules for vehicle use related to dispersed camping will apply to bicycles as well as motorized vehicles**.

Dispersed Camping

All the alternatives propose to allow driving a vehicle 300 feet off-road for dispersed camping along roads 579, 580, 581, and 550, which is no change from current management along those roads. There are also a few camp spurs along these roads that are longer than 300 feet that are proposed to be designated so that traditionally used sites could be accessed by vehicle. This applies to both motorized and mechanized vehicles.

Dispersed camping is currently prohibited along the Lower Hermosa Road 576 under a temporary closure order (*SJNF 2016a*). All action alternatives propose to make this closure permanent in order to eliminate resource impacts and social concerns related to habitual residential use of the forest in that area. The existing developed Lower Hermosa Campground is currently operated as a fee campground under existing authorities and none of the alternatives propose to change that.

Along all trails and along the Hermosa Park Road 578 corridor from Highway 550 to the top of Bolam Pass at the watershed boundary (which is also the Columbine District boundary), dispersed camping would be allowed anywhere, but the "300 foot rule" for driving vehicles is proposed to be eliminated. Driving and parking motorized and mechanized vehicles would be restricted to one vehicle length from that road and its spurs in this corridor (*FSM 7710*). This applies to both motorized and mechanized vehicles. Several spurs to traditionally-used dispersed campsites would be added to the FS system to allow vehicles to access most of these campsites, while limiting resource damage in meadows, near fens and wetlands, along streams, and in heavily used areas; the exact spurs to be designated vary slightly by alternative. ***Alternative 2*** would designate most of the existing dispersed campsite spurs, except ones between the trailhead and the creek crossing, and one that crosses the creek. ***Alternative 3*** would designate most of the dispersed campsite spurs as they currently exist. ***Alternative 4*** would designate slightly less length for some spurs in order to keep vehicles further away from streambanks. Additionally, an option to prohibit dispersed camping altogether through a Forest Order, along Road 578 between the trailhead and the creek crossing, is included in this alternative to protect streambanks that have traditionally seen heavy impacts because of the proximity of the stream to the road.

Because the spurs are so short, the differences in dispersed campsite spur designations are difficult to display at a scale appropriate for a written document. However, the details of the differences between alternatives can be provided upon request.

Hermosa Park Trailhead and Campground

Alternative 1 would leave the existing dispersed camping area north of the creek, no developed campground would be built, and the trailhead would remain south of the creek.

Under ***Alternatives 2 and 3***, the trailhead at the upper end of the Hermosa Creek Trail is proposed to be rebuilt in its current location south of the creek. Additionally, a new developed fee campground and a road bridge is proposed to be built also south of the creek. The exact layout has not yet been determined, but the trailhead and the campground would be separated. The dispersed camping that currently occurs north of the creek would be eliminated, but not until the campground is built. This would upgrade the outdated toilet and move it further from a side channel of the creek, and would eliminate the low-water crossing of the creek and associated impacts to aquatic species and water quality. Dispersed camping north of the creek occurs partially within the 100-year floodplain, and is impacting the streambank and creating sedimentation into the creek; elimination of this dispersed camping would address these concerns.

Alternative 4 proposes to move the trailhead and build the new fee campground on the north side of the creek. A trail bridge would be installed to provide foot, bike, and <50" wide OHV access across the stream to reach the Hermosa Trail. After this occurs, the dispersed camping that currently occurs north of the creek would be eliminated. This would eliminate the low-water creek crossing, upgrade and move the toilet further from the creek, and keep camping out of the 100-year flood plain. The exact design and footprint of the campground has not been identified yet, and could be east and/or west of the existing Hunter Park Road 577.

Sig Creek Campground

Sig Creek Campground is proposed for decommissioning in ***Alternatives 2 and 4***, as recommend in the recent SJNF Recreation Site Analysis (*SJNF 2016*). This is due to low occupancy rates, outdated toilet, water well maintenance expenses, and site design that does not support larger recreational vehicles. Closure would not occur prior to a replacement toilet and campground being built. ***Alternatives 1 and 3*** would retain the campground as a developed fee site.

Miscellaneous Facilities

To serve heavy recreational use along the Hermosa Park Road 578, a toilet would be provided in conjunction with the OHV staging area that is proposed in ***Alternatives 2 and 3***. The OHV staging area is to facilitate the proposed mixed use restrictions on the eastern end of Road 578.

Related to this, all of the action alternatives propose that a parking area currently being built near the ski area base would be closed in the summer, so that OHVs would not unload there, to support the implementation of the mixed use proposal. The parking area would be open in the winter to provide an unloading and parking area for over-snow vehicle use. This parking area was previously authorized for construction, but this travel management decision would designate season of use.

Any facilities authorized by the forthcoming decision based on this EA, would only be implemented if funding for construction, maintenance, and upkeep is available.

TABLE 4-4. Dispersed Camping & Facilities by Alternative

Type of Use/ Location	Alt. 1 -Current Condition	Alt. 2 - Proposed Action	Alt. 3	Alt. 4
Motorized and Mechanized Vehicle Use for Dispersed Camping				
Hermosa Park to Bolam Pass & short spurs	300 foot rule	Designate most spurs to sites. One vehicle length. 2.06 miles of camp spurs	Designate all spurs to sites. One vehicle length. 2.13 miles of camp spurs	Designate least spurs to sites. One vehicle length. 1.65 miles of camp spurs
Elbert Creek, Cascade Divide, Relay Creek, Hotel Draw	300 foot rule	300 foot rule	300 foot rule	300 foot rule
Lower Hermosa	Temporary Closure-No dispersed camping	Permanent Closure-No dispersed camping.	Permanent Closure-No dispersed camping.	Permanent Closure-No dispersed camping.
Developed Facilities				
Hermosa Park Trailhead/CG	No fee, casual use	Redevelop TH & Fee CG south of creek. Close dispersed camping north of creek.	Redevelop TH & Fee CG south of creek. Close dispersed camping north of creek.	Move TH & Fee CG north of creek. Close dispersed camping north of creek.
Sig Creek CG	Fee Site.	Close CG, but leave as dispersed camping.	Fee Site.	Close CG, but leave as dispersed camping.
Toilet and staging area @ Elbert Creek Road Intersection	None	Install toilet and OHV staging/parking area.	Install toilet and OHV staging/parking area.	None
Lower Hermosa CG	Fee Site.	Fee Site.	Fee Site.	Fee Site.

Design Criteria for All Action Alternatives

In response to public comments and internal staff concerns, design criteria were developed to ease some of the potential impacts of the action alternatives. The design criteria would be required and would be applied under any of the action alternatives (Alternatives 2, 3, and 4).

- Authorized facilities, roads, and trail upgrades would not occur unless funding is secured for construction and long-term maintenance.
- New uses on existing trails, or adding new trails to the system, would not be implemented until those trails have received specific input from FS specialists and meet satisfactory standards.
- Sig Creek Campground and its toilet would not be decommissioned until the proposed new campground is built as a replacement.
- Prohibition of dispersed camping along portions of Road 578 as proposed as an option in Alternative 4, if chosen, would not be implemented until a new campground is built as a replacement.
- Parking a motorized or mechanized vehicle off of an open system road or trail *for any purpose* would be allowed within one vehicle length from the edge of the road *only when* such use does not create unsafe conditions and does not cause damage to resources and facilities (*FSM 7710*).
- Parking a motorized or mechanized vehicle off of certain designated roads *for the purposes of dispersed camping* would be allowed 300 feet from the centerline *only when* such use does not create unsafe conditions and does not cause damage to resources and facilities.
- Parking a motorized or mechanized vehicle off of designated trails *for any purpose* would be allowed within one vehicle length from the edge of the trail *only when* such use does not create unsafe conditions and does not cause resource damage to resources and facilities.
- Signing, closure, decommissioning, or rehabilitation of unauthorized routes would occur as funding allows, with the goal of having them in a vegetated state without erosion. The following locations have been identified as priorities (depending on the alternative chosen):
    - Dispersed campsite spurs immediately adjacent to Hermosa Creek, along 578 between the trailhead and the low water crossing.
    - Camp spur which crosses the creek in T39N R10W Section 1.
    - Decommission 576A beyond Lower Hermosa Campground.
    - Remove trail bridge at South Fork Trail.
    - Shorten end of 580G at Grassy Creek.
    - Cutting of switchbacks on Bolam Pass.

- Impacts to the fen at Tin Can Basin from the existing road would be mitigated; type of actions depend on which alternative is chosen, but could include rock placement, bank stabilization, drainage structures altered, trail/road realignment, and use of heavy equipment.
- Mixed Use analysis was completed and mitigation would include:
    - "Share the Road" signs installed to alert drivers on NFSR 578 of the potential presence of OHVs operating on the roadway.
    - Delineators installed along fill slopes steeper than 1:1 and greater than 10 feet in height from the road shoulder to the toe of slope.
    - Brushing performed periodically to ensure adequate sight distance is maintained along both sides of the road.
    - Mixed uses would not be prohibited on the segment of 578 until either an OHV bypass or staging area is built, with interim safety signing installed.
- Noxious weed treatments along roads and trails, at trailheads, campgrounds and dispersed campsites will be performed.
- Site-specific ground disturbing activities needed for implementation, but not specifically mentioned in this document or not cleared as part of this process, may require additional cultural and/or threatened, endangered, and sensitive species clearances, and/or another NEPA decision prior to implementation. These activities may also need 404 permits. This includes:
    - New campground/trailhead and bridge at Hermosa Park.
    - Bridge/fish passage structures.
    - Colorado Trail parallel realignment at Tin Can Basin Road 578B.
    - Cutthroat Trail (re)alignment.
    - West Cross Trail (re)alignment.
    - OHV bypass of the first segment of Road 578.
    - South Fork Trail bridge removal.
- Sign locations, brush removal for improved sight distance on roads, new gates, etc. authorized under this decision will not occur within any cultural site boundaries.
- Informational and regulatory signing to accommodate forest users would be identified and implemented.

Comparison of Project-Level Roads and Trail Mileage

The following table compares mileage of roads and trails in the watershed by usage type by alternative.

TABLE 4-5. Comparison of Mileage of Roads and Trails by Alternative

	Alt. 1 Mileage-Current	Alt. 2 Mileage-Proposed Action	Alt. 3 Mileage	Alt. 4 Mileage
ROADS				
Roads Open to Public (FS system ML2-5) including camp spurs	57	58	58	58
Roads Closed to Public (ML1)	126	69	131	62
Roads with "No Mixed Uses" Restrictions	0.8 (2 campgrounds)	3 (add lower Hermosa Park Rd, remove Sig)	3 (add lower Hermosa Park Rd, remove Sig)	3 (add lower Hermosa Park Rd, remove Sig)
Total FS System Roads, Minimum Road System (ML1-5)	**183**	**127**	**190**	**120**
TRAILS				
Trails Open to Non-Motorized and Non-Mechanized *Only*	31 (wilderness trails)	13 (remove 3 in wilderness)	31	24 (remove 3 in wilderness, add Big Lick, upper Elbert,W.Cross)
Trails Open to Mechanized Wheeled Vehicles (Bikes)	100	118 (add W. Cross, Cutthroat, Purg. trails)	124 (add W. Cross, Cutthroat, Purg. trails, Pasture Creek)	103 (remove upper Elbert, Big Lick, W.Cross)
Trails Open to e-bikes, but no other motorized vehicles	0	10 (add Purg trails)	13 (add Purg. Cutthroat trails)	0
Trails Open to Motorized >50" wide Wheeled Vehicles and all smaller (not including e-bike trails)	0	0	7 (add Pasture Creek)	0
Trails Open to Motorized <50" wide Wheeled Vehicles (OHVs) (not including e-bike trails)	10	10	17 (add Pasture Creek)	10
Trails Open to Motorized Single Tracked Wheeled Vehicles (Motorcycles) (not including e-bike trails)	32	32	37 (add upper Dutch)	32
All Motorized Trails (not including e-bike trails)	42	42	53 (add Upper Dutch, Pasture Creek)	42
Total FS System Trails	**131**	**131**	**155**	**127**

5.0 ENVIRONMENTAL ANALYSIS of IMPACTS

This section summarizes the physical, biological, social and economic environments of the affected environment for each resource followed by the potential changes to those environments due to implementation of the alternatives.

The following chapter is organized by resource area, and addresses issues that were raised during scoping, and impacts from the alternatives (e.g. Recreation, Wilderness, Watershed, Vegetation, Fisheries, Wildlife, and Cultural). Resources for which issues were *not* identified, or that do not exist within the landscape are not analyzed in this section (e.g. air quality, prime or unique farmlands, Wild and Scenic Rivers, or parklands).

Other resources (e.g. Range, Fire, Scenery, Lands, and Minerals) *do* have items in the proposed action for the Forest Plan Amendment that could have slight impacts on those resource, but impacts analyses sections are not included below. This is because the impacts would be so minor, and/or differences between alternatives would be so small, that an entire analysis section is unwarranted. For example, clearing of helispots for fire management would remove an inconsequential amount of vegetation; or changing the Scenery Integrity Objectives would mirror the impacts already described for recommended wilderness; or consolidation of land ownership simply reiterates and emphasizes policy already in place; or adding guidance regarding surface use for minerals operations would potentially reduce surface impacts, but only to a very minor degree because of the mineral withdrawal already in place for most of the watershed.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that all federal actions consider the potential of disproportionate effects on minority and low-income populations in the local area of the proposed action. The overall populations of La Plata and San Juan Counties are neither meaningfully greater than the state average of minorities or individuals living below the poverty line (*EPS-HDT 2107*). Disproportionate negative impacts on area populations are not expected, and will not be discussed further.

Each resource section begins with a description of the Affected Environment, or existing conditions. Then, each section provides an analysis of direct and indirect effects, or Environmental Consequences, of implementing each alternative. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and occur later in time or removed in distance. Differences in impacts between alternatives are emphasized. Each resource section then describes Cumulative Impacts, which are the direct and indirect effects of the project added to the effects from other past, present, and reasonably foreseeable actions.

Because this EA covers both Forest Plan level guidance, and project-level planning, and because there will be two separate corresponding decisions, the discussions of impacts for these two pending decisions are separated within each resource section below.

Recreation

Affected Environment

Recreation is one of the major uses in the planning area. Recreation activities taking place in the planning area include driving forest roads for pleasure, camping, hiking, hunting, fishing, fall color viewing, and both motorized and non-motorized trail uses including by motorcycles, OHVs, mountain bikes, hikers, and horses, skiing both at Purgatory and back country skiing, and both recreational and guided snowmobile use.

There are six major Forest System roads, and five secondary roads currently open for public use, see Tables B-1 and B-2 for details. The roads are all gravel-based and can be rough to travel. The Lower Hermosa Road 576 is the most developed road, which is paved for the first two miles on private property; at the forest boundary, the road surface changes to a gravel surface.

The Hermosa Park 578, Elbert Creek 581, Cascade Divide 579, Relay Creek 580, and Hotel Draw 550 Roads all currently have a fall closure date of November 15 each year. This is due to ski area operations starting at Purgatory Ski area. The road system is self-contained within the watershed except for connections to the Dolores Ranger District over Bolam Pass and Hotel Draw. The Lower Hermosa road currently does not have closure dates, and closes when the snow gets too deep.

The FS conducted a motorized mixed use analysis of the Hermosa Park Road 578 (*SJNF 2014*) and assessed the crash probability and severity to be "high" for the first 3.3 miles of the road. These analyses are typically conducted for high-use roads. The analysis resulted in a recommendation that the first three miles not allow motorized mixed use. This recommendation was based on the traffic intensity on the road, site distances, steep and winding conditions, and the knowledge that in state of Colorado, someone as young as ten years of age can operate an OHV as long as they are under the supervision of a licensed operator. The existing condition of motorized mixed uses on this segment of roads presents a safety concern.

There are currently sixteen FS system trails in the planning area. The trail system includes motorized and non-motorized trails. Five of the sixteen trails are located in the Hermosa Creek Wilderness and are open to foot and horse travel. See Table B-3 for existing designated use. The Hermosa Creek Trail is heavily used in the summer by motorcycles, OHVs, mountain bikes, fisherman, and hikers. The trail is nationally known in the mountain bike community as a top ride in the country. The motorized trails in the planning area have been legally used for decades by dirt bike motorcycles. Typically, the trails see the most use from late June to early September. Use of the trails in the planning area pick up again during big game hunting season as the project area is located in a game management unit in which some licenses are unlimited. The fall season also sees an increased use by commercial big game outfitters who set up camps that can be in place from late August to late October. The motorized trails in the watershed are geographically isolated from nearby populated areas and have not generated noise or other complaints from private land residents.

The FS has heard from some members of the public about safety concerns related to mountain bikes traveling so fast that a hiker or horseback rider does not have time to react before the bike reaches them, creating a safety issue.

The Colorado Trail is a 500 mile long-distance mostly non-motorized trail that skirts the northern end and western side of the Hermosa watershed. The main user groups on the trail are hikers and mountain bikers. The Colorado Trail is one of the country's major through-hikes and users come from all over the United States to spend four to six weeks hiking the trail. The Colorado Trail Foundation is a partner with the FS in managing the trail. Colorado Trail Foundation has adopted the trail from beginning to end and has multiple volunteer trail crews and adopters who maintain, repair, and clear the Colorado Trail each year; this partnership is a key component of the life of the trail. The trail is comprised of 28 segments from Denver to Durango; there are four segments, 25-28, that travel through or skirt the Hermosa watershed. The FS strives to eliminate motorized use from the trail, but there is legal motorized use on the trail in segment 26 because it is coincident with a road for a short distance.

In the winter, there are four major FS roads that are groomed for public over-snow routes. The grooming is conducted in cooperation with partners or permitted guides services. The majority of over-snow use is motorized and originates from US Highway 550; both commercial operations and public users stage out of the Purgatory base area. A smaller number of public snowmobile and over-snow motorcycle riders travel into the watershed in the Bolam Pass area from the Dolores Ranger District. The Junction Creek road is another area that is used by snowmobiles, although it is used significantly less than the Purgatory portal. There are also large areas for over-snow travel that are not groomed. The Hermosa area holds snow later into the spring and is becoming more popular each year for all over-snow travel activities. Other than within the downhill ski area, there is a low amount of non-motorized over-snow use that occurs because access is limited by topography.

There are two developed campgrounds and many dispersed campsites in the planning area. The two campgrounds are Lower Hermosa campground and Sig Creek Campground. Both campgrounds are fee sites and are managed by a concessionaire. The Lower Hermosa Campground sees significantly more use than Sig Creek Campground. Lower Hermosa Campground and dispersed camping sites are heavily used from mid-June to late August. The camping use picks up again during the big game hunting seasons. There is a restroom facility located at the Upper Hermosa Trailhead, along with corrals for horses. Because of the facilities at the upper trail head, the area is used by dispersed campers in the summer and fall.

Currently, camping is temporarily prohibited along the Lower Hermosa Road 576 because of habitual residential use. Prior to this camping closure, there were unacceptable impacts occurring from off-road driving, trash, target shooting, and confrontations with transients.

The Hermosa Park Road 578 has many dispersed camping sites from the junction with the Elbert Creek Road 581 all the way to Bolam Pass. Driving off-road for camping is currently only limited by the "300 foot rule" and the 14-day camping limit. The dispersed sites along the East Fork of the Hermosa are usually not near the creek itself, but rather in meadows north of the road or on limestone benches just south of the road. The dispersed camping sites in the meadows are typically used by groups or multiple families. The sites on the limestone benches are typically used by single families or individuals. There are a few dispersed sites near the creek on the south side of the road, but these are the exceptions. There are about eight dispersed sites along the main stem of the Hermosa north of the Upper Trailhead, adjacent to the creek itself. The streambanks at these sites are seeing increasing resource impacts. There are more dispersed

camping sites in the meadows north of the creek crossing which are also in very close proximity to the creek. There are also some dispersed sites location near Bolam Pass and the Tin Can Basin area.

The Elbert Creek, Relay Creek, Hotel Draw, and Cascade Divide roads all have dispersed camping along them, but see less use than the Hermosa Park Road 578. At the end of the Elbert Creek Road 581, there is a heavily used dispersed camping area, locally referred to as the Strawberry Patch, which has been seeing more use during hunting seasons for the past few years.

Fishing is a popular activity in the Hermosa watershed. Both the East Fork of Hermosa Creek and the main stem are managed by Colorado Parks and Wildlife as catch-and-release down to the confluence with East Cross Creek, because the streams are habitat for Colorado River cutthroat trout.

The Recreation Opportunity Spectrum (ROS) is a system for classifying and managing recreation opportunities based on the following criteria: access, remoteness, naturalness, built environment, social encounters, visitor impacts, and management. The Forest Plan has ROS recreation zone maps for both summer and winter activities. The planning area is located in four of the ROS classes for both summer and winter; Primitive Wilderness, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, and Roaded Natural. See Figures 2.14.2 and 2.14.3.

The Primitive Wilderness ROS class is affected primarily by the forces of nature. There are opportunities for solitude, natural quiet, and unconfined recreation of non-motorized and non-mechanized travel year round. When the Hermosa legislation created the new wilderness, this ROS class became automatically applied to the 37,400 acres in the wilderness.

Semi-Primitive ROS settings are non-wilderness lands characterized by predominantly natural appearing landscape with significant opportunities for non-motorized, primitive forms of recreation. Concentrations of users are low. Opportunities are provided that allow visitors to have a high degree of interaction with the natural environment, as well as a sense of remoteness, quiet and solitude. Trail systems are designed in order to provide challenge and opportunities for self-reliance. Semi-primitive ROS setting can be motorized, mechanized, or non-motorized. Most of the SMA is contained within these two classes.

The Roaded Natural ROS setting is characterized by a higher degree of development and human "footprint" than those of primitive and semi-primitive settings. Sights and sounds of human activities are common, as are encounters with other recreation users. Users should also expect the presence of active management activities, areas of adjacent and/or interspersed private lands and development, an extensive trail network, intensively developed recreation sites, and abundant access points for recreation activities. Commercial users can be common in these areas. This class is located along the major road corridors at lower Hermosa, Hermosa Park, Hotel Draw, and Junction Creek Road.

Environmental Consequences

Plan-Level Impacts

The proposed Plan components related to recreation reflect legislative requirements for the most part. A Forest Plan amendment to bring the Plan into compliance with the legislation may be required, but these kinds of changes are non-discretionary and would be included in all

alternatives, and not open for discussion in this EA. These include such items as requiring that all motorized and mechanized use shall be on designated routes, and that the management area, scenic objectives, and other items automatically result from the designation of the wilderness and SMA. However, there are other proposed Plan amendments components that are discretionary and vary somewhat by alternative.

The addition of a standard under all action alternatives to include seasonal closure dates on all roads and trails would be a new regulation in the watershed and would limit recreation opportunity. The recreational impact of the seasonal closure would mostly be felt in the spring and fall when warm weather conditions might encourage recreation, but the closures are in place.

There is a proposed guideline addressing net trail miles. This guideline would impact recreational opportunities for future trail network growth differently in each alternative. Alternatives 1 and 3 would not include the guideline on net trail miles, thus not impacting potential future trail development. Alternative 2 would allow for new trails to be developed with a 1:1 ratio of miles gained to miles lost, or no net gain of trail miles within the watershed. This would maintain the amount of miles of trail available for use, and that the FS manages, yet would still provide an opportunity for new trails to be added in the future. Alternative 4 would include a guideline for reducing the miles of trail in the watershed by a 2:1 ratio if a new trail is developed. Slowly over time, this alternative would reduce trail opportunities because for every mile of trail added, there would be two miles removed from the system; while this would be environmentally and financially beneficial, it would be detrimental to recreation.

Over-ground (summer) suitability acreage is proposed to be increased under Alternatives 2-4 in the area north of the wilderness in order to accommodate the existing motorized use on the Corral Draw Trail; if Alternative 1 (No Action) were chosen, the motorized use on the trail would not be in compliance with the Forest Plan even though Corral Draw trail has been designated for motorized use for over a decade.

The legislation states that over-snow recreation shall be provided for in the SMA. Each alternative provides suitability for over-snow travel in differing amounts. In Alternative 1, current over-snow travel suitability designations would remain in effect as they are currently mapped in the Forest Plan. The current acreage for over-snow travel suitability would remain at 15,371 acres. Two winter outfitter and guide companies that have permitted use in the SMA would need to have their authorizations amended in order to allow them to continue grooming routes that are in areas that are currently designated as non-suitable for over-snow motorized travel in the Forest Plan. This alternative would also impact the general public because many of the non-suitable areas have historically and continually been ridden. The current designations for over-snow travel would require greater education and increased signage of suitable areas.

Alternatives 2 and 3 would amend the Forest Plan to allow over-snow motorized use in a larger designated area, 35,303 acres. Roads or other snow routes that are currently groomed by volunteer groups or permitted outfitter and guide services would be included in the suitable area and no routes would be groomed in non-suitable areas. This alternative reflects current use by permitted outfitter and guide services, and casual use during the winter. Alternatives 2 and 3 would also allow over-snow motorized use in Elbert Creek, which is currently not designated as suitable in the Forest Plan. New over-snow travel technology such as over-snow motorcycles are opening up opportunities for riding that were never before imaginable. A rider on an over-snow

motorcycle can climb very steep slopes in dense timber, thus they are able to access terrain that even a modern snowmobile cannot. These alternatives would allow for a maximum of riding opportunities and would also take into account the ever changing technology of over-snow vehicles. Expanded over-snow open areas would potentially impact non-motorized and non-mechanized winter users with increased noise, tracked snow, and more competing users, however, the proposed open areas have limited access and receive nominal human-powered use.

Alternative 4 would amend the Forest Plan to allow motorized use in a slightly different configuration than is currently in the Forest Plan for suitable and non-suitable areas. The acreage would be slightly larger than Alternative 1, at 15,875 acres. This alternative proposes suitability only in areas where outfitter and guides currently operate, and along the major road corridors that are currently groomed by volunteers. Areas other than designated groomed routes and permitted outfitter and guide areas would be considered unsuitable. This alternative would greatly limit over-snow travel compared to what is currently being ridden by the general public and does not take into account the development of new technologies. It would also require more presence by the FS to enforce the unsuitable terrain and to educate the public of the changes.

Project-Level Impacts

Roads

Under Alternative 1, there would be no changes to the roads system. This alternative would not address the safety concern with motorized mixed uses on the lower segment of the Hermosa Park Road 578. This alternative would also not permanently address residential use along lower Hermosa road.

Under all action alternatives, the Lower Hermosa Road 576 and campground would be seasonally closed in the winter, but remain open for Christmas tree cutting (with a permit). This would eliminate shoulder season recreational opportunities, but would also eliminate shoulder season illegal residential use.

All action alternatives would prohibit motorized mixed uses on first three miles of the Hermosa Park Road 578. This would be an inconvenience to OHV riders because they could no longer unload at the base of ski area and ride up the road. With the addition of a proposed staging area and restroom in Alternatives 2 and 3, a new unloading area would be provided. The disadvantage of this is that riders would have to trailer their OHVs three miles up the road, and would not be able to ride to the base area at the ski resort. Alternative 3 proposes the possibility of an OHV bypass route from Purgatory's ski base area to the proposed staging area. This would add an additional opportunity for those that do not want to trailer their OHVs the extra three miles and would also add an opportunity for motorized recreationalist to stop at Purgatory for lunch or other amenities. The exact alignment has yet to be determined. Elimination of motorized mixed uses from this segment of Road 578 would remove an unsafe situation that was identified in the engineering analysis.

In all action alternatives, seasonal closures would apply to mechanized as well as motorized uses on roads; this would be a new restriction on bikes and would reduce opportunities for cyclists, especially on the Lower Hermosa Road 576 in the spring. The public would not be able to drive or ride to the lower Hermosa trailhead until May 1, even though the lower elevations may be dry.

The Lower Hermosa Road 576 would remain open until December 31under all action alternatives to allow for Christmas tree collection.

Seasonal road dates in the upper watershed would generally remain the same as current management, except Alternatives 2 and 3 propose that roads that can be accessed from the west through the Dolores Ranger District (Hotel Draw 550 and the west end of 578 from Bolam Pass) would be left open until November 30 to allow longer access during years with lower or later snowfall. This would provide hunters in later seasons with access to the Hermosa area. Signs or gates would need to be installed at the top of Hotel Draw and Bolam Pass to alert travelers that they wouldn't be able to travel through the ski area to Highway 550 after November 15. Alternative 4 would have the closing date of all these roads to be November 14, which would reduce road damage by forest users that drive on the roads when they are slick and muddy, and would also reduce confusion by standardizing the closing dates.

The road at Tin Can Basin would be closed to full-sized vehicles in all action alternatives beyond the first campsite, which would reduce motorized opportunities and vehicular camping opportunities that occur along the road. Under Alternatives 2 and 3, the Tin Can Basin Road 578B would be converted to a single track motorized trail, which would retain some of the motorized use. Under Alternative 4, the road would be converted to a non-motorized trail. This would reduce motorized use the most, as it would be closed to all motorized uses. However, by closing the road to full sized vehicles, conflicting uses of the alignment by the Colorado Trail and the East Fork Trail would be resolved. The ultimate resolution of which alternative is chosen will be decided under the Rico-West Dolores Travel Management plan.

Alternatives 2 and 3 would authorize full-sized road crossing structures at both the water crossing of the main stem of Hermosa Creek and also at the Upper Hermosa Trailhead. Along with the installation of a bridge at the Upper Hermosa Trailhead, the road would be upgraded from a ML2 to a ML3. During construction of these crossings, there would be short-term closures of the roads and/or trailhead, affecting recreational travel for short periods. The benefits of installing the road crossing structures would mean recreational users accessing campgrounds or driving forest roads would not be contributing to sedimentation in the creeks, would have better driving conditions, and would not have to ford the streams. Alternative 4 differs from Alternatives 2 and 3 as it would include an OHV trail bridge at the Upper Hermosa Trailhead, but would not change the low water crossing of the main stem, thus removing one low-water crossing, but still requiring a ford at the other.

Alternatives 2 and 4 propose to lower the maintenance level of roads 579 and 580 from ML3 to ML2. The lower maintenance level would mean less maintenance resulting in rougher road conditions in the long-term and slower travel for forest visitors using these two roads.

Trails

Under Alternative 1, current trail use would remain in effect and no seasonal trail closures would be implemented. Under all action alternatives, seasonal trail closures would apply to mechanized as well as motorized uses. This would affect how early or late trail users could use the trails. Trail users would not be able to use trails during dry springs with low snow until May 1, and would not be able to ride the trails after the closure has gone into effect in the fall even though snowfall may be late. The one exception would be that the Colorado Trail would not

have any seasonal closure dates because it is part of much longer trail which weaves in and out of the watershed boundary. Under Alternative 3, many trails would be open slightly longer to coincide with the later closures dates for the respective roads. This would have a benefit for use of the trails in the fall on low snow years.

All action alternatives propose that the existing, permitted trails on the "backside" of Purgatory ski area be added to the system. The addition of these trails would comply with the legislative requirement that all mechanized and motorized vehicles be restricted to designated trails. Alternatives 2 and 3 also propose a special designation on the Purgatory backside complex of trails as open for the use of class 1 e-bikes. Forest Service policy states that all e-bikes are considered motorized vehicles and must be used on trails designated for motorized use (*Meade 2016*); the type of motorized use can be specified by vehicle type, such as e-bike only, single track, <50" wide, or >50" wide. To designate a motorized trail classification for "e-bikes only" on the Purgatory complex of trails would be the first such special designation on the SJNF, providing opportunities for a new recreational experience. The Purgatory complex of trails is a relatively self-contained system which would minimize conflicts with uses on non-motorized trails; however, there are connections to non-motorized trails, which could confuse the public as to where it would be legal to ride e-bikes. Alternative 4 would not include the special designations for e-bike trails on the ski area, and they would be limited to motorized trails like any other motorized vehicles. This could eliminate potential confusion.

Under all action alternatives, other new trails that would be added to the FS system include West Cross Creek and the Cutthroat Trail. The West Cross Creek Trail was once part of the FS trail system, but was later removed, probably because of concerns that it crossed what was private property at the time; the FS has since acquired this parcel. This trail has become very popular and is currently seeing more use every summer. The FS cannot spend allocated dollars on maintaining unauthorized non-system trails, so by adding the trail back into the system, the FS would be able to maintain it. For this trail in particular, this is important because the current alignment is on a historical stagecoach road, which would be better protected if the trail were maintained. The use of the trail would be restricted until the FS is able to construct a connection between the wagon road alignment and the Upper Hermosa Trailhead. Until that time, trail users would likely assume the trail is open and would likely continue to use the trail.

The addition of the entire length of the Cutthroat Trail under Alternatives 2 and 3 would improve a safety concern by reducing bicycle-vehicle interactions on the Hermosa Park Road 578; cyclists would have an alternative way to travel to the Upper Hermosa Trail Head instead of riding on the heavily used road. The trail would provide a more challenging riding experience and be more difficult to maintain than many local trails because it is likely to remain muddy into the spring and during monsoon season as much of the trail is tree-shaded and north-facing. Other potential impacts to the watershed are discussed elsewhere in this EA. Like the West Cross Trail, the use of the trail would be restricted until the FS is able to bring the trail up to an acceptable condition, and confusion over its interim status would be likely. Alternative 2 proposes to designate the section of the Cutthroat Trail that is within the Purgatory ski area boundary for the use of class 1 e-bikes, because it would provide another connected loop to be part of the larger Purgatory e-bike trail system. However, the segment of the trail traveling west out of the ski area would be designated as non-motorized under this alternative. This change in use of a trail mid-way along its length could be confusing for cyclists and could lead to illegal use of e-bikes on the

trail west of the ski area. Alternative 3 proposes that the entire length of the trail be open to e-bikes. Alternative 4 proposes to add only the eastern segment of this trail that would be part of the Purgatory complex of trails, and there would be no e-bike use on any trail under this alternative.

Alternatives 2 and 3 propose to create a new non-motorized Colorado Trail segment to parallel the existing Tin Can Basin road. This would be a benefit for the Colorado Trail users, as it is an objective for the entire trail to be a completely non-motorized route. Until the new trail segment could be constructed, and under Alternative 1, the Colorado Trail would remain coincident with motorized use for approximately 0.8 miles, which is an undesirable situation for this trail. Under Alternative 4, the coincident motorized use would be removed and a new parallel segment would not be needed. As discussed above, which alternative will be chosen will be decided by the Dolores Ranger District under an adjacent travel management plan.

Alternative 3 proposes to create a >50" motorized trail called the Pasture Creek Loop. This loop trail would be about seven miles in length and would be on closed ML1 system roads that are mostly revegetated at this time. The trail would be in an area that currently has no motorized trails and has typically be used by quiet uses such as hiking and hunting, which could create new conflicts between users. Conversely, the addition of the new trail would add an opportunity that does not currently exist in the Hermosa SMA for jeeps and or side-by-side type OHVs.

Alternative 3 also proposes to allow motorized use on the Upper Dutch/Pinkerton Trail. Impacts for construction would be minimal as the majority of the trail would be on an old road bed and would be easy to convert for motorized use and maintain. By opening this trail to motorized use, a very large motorized loop would be created, connecting the Jones and Dutch Creek Trails to the roads in the northern part of the SMA. This trail is currently a non-motorized trail and is used by hikers, mountain bikers, horseback riders, and extensively used during big game hunting season. These quiet uses could see negative impacts from noise and dust from the proposed motorized use. The designation for motorized use could also encourage illegal motorized use on connecting trails such as Big Lick and Little Elk, and would create enforcement difficulties intensified by reductions in FS staff and budgets.

Alternative 4 proposes that the West Cross Creek, Big Lick, and Elbert Creek (above Elbert Creek Road) Trails would be closed to bicycles. This alternative would provide a few trails outside of the wilderness with easy access that are open to foot and horse travel only, and would create three trails where conflicts between cyclists and foot and horse traffic would be eliminated. However, these would be the only trails outside of wilderness with such a designation, which would create confusion and enforcement difficulties intensified by reductions in FS staff and budgets.

The impacts of the proposed removal of Big Bend, South Fork and Neglected Trails from the system are discussed in the Wilderness, Environmental Impacts section below.

Dispersed Camping and Developed Facilities

Current conditions relating to dispersed camping would not change under Alternative 1. All action alternatives propose to eliminate the "300 foot rule" along the Hermosa Park Road 578, and instead, to designate many of the existing user-made routes to traditional dispersed campsites as system roads. All action alternatives also propose the make the temporary Lower Hermosa

dispersed camping prohibition into a permanent one. These proposals would serve to reduce dispersed camping opportunities in the watershed, although minimally. Alternative 2 proposes to designate most of the existing dispersed campsite spurs, except about eight spurs between the upper trailhead and the low water crossing of the main stem of Hermosa Creek. Alternative 3 proposes to include those camp spurs, providing the most opportunities; there would be no reduction in the use of existing traditionally-used dispersed campsites. Potential negative impacts to streambanks and water quality could occur and are discussed elsewhere in this EA. Alternative 4 proposes to designate the least dispersed campsite spurs. Whichever alternative of camp spurs is chosen, the opportunities to use most of the same dispersed campsites will still exist, with a few exceptions, but it will be a change in philosophy for people who have camped uncontrolled in the Hermosa for many years.

A major change to the recreational character of Hermosa Park would be the redesign and creation of a new trailhead and fee campground in the vicinity of the current Upper Hermosa Trailhead. Alternatives 2 and 3 would most closely maintain the location of the current trailhead; in order to accomplish this, a full-sized bridge would be constructed to improved access to the new facilities. This would improve visitor safety and convenience by eliminating fording the creek during high water, and visitors with low clearance vehicles would not need to park on the north side of the creek and then try to cross the creek by foot or bike. Under Alternative 4, the trailhead and campground would be constructed north of the creek with only an OHV-sized trail bridge. Once the new trailhead and campground are constructed, the dispersed camping along the trailhead access road (577) on the north side of the creek would be closed. This area has been very popular in the past, and these dispersed campers would then have to stay in the developed fee campground, or would need to find alternative dispersed campsites. One reason for closing the dispersed camping at this location would be to address impacts of a heavily used dispersed camping area so close to the creek, and potential safety concerns of considerable amounts of camping in a 100-year flood plain. Any newly built campground would not be built in the floodplain and would potentially improve visitor safety. It would also be designed to accommodate larger recreational vehicles and horse trailers. The design and exact layout and location of the campground and trailhead would not be determined until funding is available.

The recent SJNF Recreation Site Analysis (*SJNF 2016b*) recommended Sig Creek Campground to be decommissioned due to outdated camping facilities, water well maintenance expenses, and the fact that the campground's current configuration does not suit today's larger recreational vehicles. This recommendation is adopted by Alternatives 2 and 4. The proposed new campground at the upper trailhead would replace the loss of Sig's developed sites and address the deficiencies at Sig Creek Campground. The new campground at the Upper Hermosa Trail Head would be quite a different camping experience compared to the camping at Sig Creek Campground; the new campground would be larger and much busier, and in an open park instead of in the trees. The Sig Campground road would remain open however, and camping along the road would be considered dispersed camping; the toilet, water well, tables, and other developed campground improvements would be removed. Campers who currently enjoy the more secluded setting of Sig could still use the area for free, but without the amenities. Sig Campground would not be closed prior to construction of the new campground. Alternatives 1 and 3 propose to retain Sig Creek Campground and the recreational option of developed camping in that setting.

The combination of elimination of the "300 foot rule", closure of a few dispersed campsite spurs, closure of Sig Creek developed campground, and construction of a new developed campground would change the over-all character of the recreational experience in Hermosa Park and could possibly reduce the total number of campsites available (depending on the final design of the new campground), but would also address the negative resource impacts of ever-increasing recreational use on the streams and vegetation.

Over-Snow

Refer to the Plan-Level Impacts discussion for over-snow proposals (p.103). Because the project-level adoption of "open" areas would mirror the Plan-level designation of "suitable for motorized over-snow travel" areas, then the impacts to recreation would be mostly the same as already described. One difference in impacts at the project level is that all action alternatives propose to restrict mechanized and motorized over-snow travel to the open areas, while the suitability determination at the Plan level only applies to motorized use. This means that fat tire bicycles or other mechanized over-snow vehicles would be limited to the same open areas as motorized vehicles and opportunities for mechanized over-snow use would not be available on most of the trails, unless they are within the open areas. However, this would reduce over-snow mechanized opportunities only minimally because the trails are not groomed anyway, and because the road access to the Lower Hermosa trailhead is proposed to be closed in the winter.

Restricting season of use under Alternative 4 would not impact over-snow recreational opportunities in the fall because there is seldom adequate snow before 11/15. Opportunities in the spring after 4/30 could be reduced if users wanted to trailer their machines through melted-out lower elevations up to snowline; this is not a popular use of the area currently, and thus, would only slightly reduce opportunities.

In summary, the effects to the recreational experience of this proposal may be negative in the short-term during constructions activities of trails, campgrounds, or staging areas, but the long-term overall effect would be beneficial.

Cumulative Impacts

Within the wider Durango urban-interface area, recreational experiences have been impacted by many factors, including the other travel management decisions completed on the SJNF's three Ranger Districts, continued advertising and publications about the popular Hermosa Creek Trail, and the new Hermosa Creek Wilderness. Additionally, the recently completed Recreation Site Analysis recommends eliminating facilities or scaling back on services at many recreation sites across the forest due to declining budgets.

Other management activities within the Hermosa watershed also influence recreation. For example, a fish barrier will be constructed during the summer of 2017 in Hermosa Park. The contractor that will be constructing the barrier will use the Hermosa Creek Trail as an access route to the job site. This will affect recreation as there will be short-term closures of the trail, for the first mile south from the upper trailhead, during blasting operations and when supplies and equipment are being transported into the work site. The trail will also be modified to allow full-size vehicles and construction equipment access to the work site. This project will

temporarily limit the use of the trail by recreationist and will somewhat alter the character of the trail in the long-term.

Livestock grazing in the watershed impacts recreation and is dependent on many factors, including location, timing, frequency, duration, and intensity of grazing. Impacts to general recreation include humans encountering livestock on trails and in camping areas Evidence of livestock in these areas includes manure and hoof tracking; when areas are wet, this may include compaction or possible damage to trails. Additional impacts to Purgatory Ski Area can occur when gates are left open or fences become damaged and livestock are able to access areas of the ski area outside of their authorized pastures. These additional impacts include livestock and manure in or near the base area, lift terminals, and other ski area facilities, along with potential encounters during resort activities and events.

The Dolores Ranger District is nearing completion of the Rico-West Dolores Travel Management plan for the landscape immediately west of the Hermosa watershed, and that decision will impact the timing and type of recreation on roads, trails, and over-snow which cross into the SMA.

Purgatory Ski Area was purchased by a new owner in February of 2015. Since that purchase, the new owner has been aggressively moving forward with implementation of previously approved projects. Over time, this will likely provide more recreational opportunities and use in the SMA.

Technological development of over-snow vehicles, skis, snow safety equipment, and fat tire bikes allow winter recreationalist to access areas that have been very hard to get to in the past during the winter. This new technology is leading to larger amounts of people recreating in areas which did not see human visitation during the winter in the past.

While recreational demand Forest-wide and regionally is increasing, the proposed actions in the Hermosa Plan do not make large-scale changes that would be considered to substantially increase or decrease the over-all recreational opportunities in the Durango area.

Wilderness and Roadless Areas

Affected Environment

Wilderness

The Hermosa watershed contains the Hermosa Creek Wilderness of approximately 37,400 acres, which was designated by legislation in December 2014. The wilderness is located on the western (east-facing) side of the watershed, with several drainages flowing east into the Hermosa Creek. The vegetation is primarily spruce-fir forest type, with some aspen, ponderosa pine at the lower elevations, and small open meadows scattered throughout.

The wilderness currently includes around 30 miles of FS system trails, which receive light use most of the year, and moderate use during fall hunting seasons: Clear Creek, South Fork, Neglected, Salt Creek, and Big Bend. These trails basically run east-west between the Colorado Trail on the western boundary and the Hermosa Creek Trail to the east. There are an unknown number of user-made trails that are also primarily used during hunting seasons.

The wilderness provides excellent opportunities for solitude and primitive experiences because it is lightly used.

The Forest Plan currently includes an additional 6,200 acres as recommended wilderness around the exterior of the designated wilderness. This is the result of a larger area that was originally identified by the FS as appropriate for wilderness than the acreage that was ultimately designated by Congress. See Figure 3.6.1.

Roadless Areas

The FS has inventoried and studied roadless areas since the 1970s. Roadless Areas are generally defined as areas in a National Forest or National Grassland that (1) are larger than 5,000 acres (in the west) or, if smaller, contiguous to a designated wilderness or primitive area; and (2) contain no system roads; and (3) have been inventoried by the FS for possible inclusion into the Wilderness Preservation System. Colorado Roadless Areas (CRA) inventory was updated in 2009 during rulemaking for the *Colorado Roadless Rule (36CFR294*). CRAs are divided into Upper Tier areas and Non-Upper Tier areas, which differ in the level of protection provided under the *Rule*. The *Rule* describes nine resources or features that are often found in, and characterize CRAs. The intent of the *Rule* is to protect these roadless characteristics:

1. High quality or undisturbed soil, water and air:
2. Sources of public drinking water;
3. Diversity of plant and animal communities;
4. Habitat for threatened, endangered, proposed, candidate and sensitive species, and for those species dependent on large, undisturbed areas of land;
5. Primitive, semi-primitive non-motorized and semi-primitive motorized classes of dispersed recreation;
6. Reference landscapes (none are identified in this project area);
7. Natural-appearing landscapes with high scenic quality;
8. Traditional Cultural Properties and sacred sites (none are identified in this project area); and
9. Other locally identified unique characteristics.

The *Rule* describes three general prohibited actions within CRAs, but allows some exceptions to those prohibited actions. The first prohibition is against tree cutting, sale, or removal. The most likely allowed exceptions to this prohibition within the Hermosa watershed would be if it is determined that the tree cutting is incidental to the implementation of a management activity not otherwise prohibited, or is needed to maintain or restore the characteristics of ecosystem composition, structure and processes, or is needed and appropriate for personal or administrative use. These kinds of projects are expected to be infrequent.

The second prohibition is against road construction and reconstruction in CRAs. The most likely allowed exceptions to this prohibition within the Hermosa watershed would be if it is determined that a road is needed to facilitate tree cutting, sale, or removal to maintain or restore characteristics of ecosystem composition, structure and processes, or if a road is needed pursuant to reserved or outstanding rights.

The third prohibition in CRAs is against linear construction zones. The most likely allowed exception to this prohibition within the Hermosa watershed would be for construction, reconstruction, or maintenance of an authorized water conveyance structure which is operated pursuant to a preexisting water court decree, or pursuant to reserved or outstanding rights.

There are three CRAs with acreage in the watershed: the Blackhawk Roadless Area with 4,480 acres, the San Miguel Roadless Area with 1,280 acres, and the Hermosa Roadless Area (also called the East Hermosa Area in the legislation) with about 43,200 acres. Approximately 5,300 acres of the Hermosa Roadless Area are Upper Tier acres. These acreages do not count the CRA acres that are overlaid by the new wilderness. See Figure 2.1.1.

Environmental Consequences

Plan-Level Impacts

Wilderness

The proposed Forest Plan action alternatives (Alternatives 2-4) would affect the management of the Hermosa Creek Wilderness by adopting the same management plan guidance as currently exists for the Weminuche Wilderness (*SJNF 1998*). This guidance include such items as party size limits, restrictions on camping locations, use of weed-free hay, trail maintenance standards, and desired levels of encounters with other parties within certain management areas. Adopting the same wilderness management as the nearby Weminuche would create consistency and be easier to understand for both the public and the FS. The one exception to adopting the same management (no requirement to camp 100 feet from water) under Alternatives 2 and 4 would be a benefit to recreationists in the Hermosa Creek Wilderness because the steep topography does not provide adequate camp sites this far away from drainage bottoms.

All action alternatives propose to delineate the management areas in the same manner, with Management Area 1.12 along the most-used system and non-system trail corridors. The balance of the wilderness would fall within Management Area 1.11 (Figure 3.6.2). The difference between these two designations is that within 1.12, one can expect to have more encounters with other people and see more evidence of human influences.

The FS does not have the authority to designate wilderness and therefore only recommends to Congress what areas the agency believes are appropriate for designation. Alternative 1 includes the most recommended wilderness because it includes all the acreage that was originally recommended in the Forest Plan. However, since the legislation did *not* include the entire originally-recommended area, the FS proposes in Alternatives 2 and 3 to drop the remaining recommended acreage in acknowledgement of the final legislation. The retention of the recommended strip along Hermosa Creek under Alternative 4 recognizes that the currently designated wilderness boundary might more logically be placed at an obvious topographic feature like the creek. Whichever alternative for recommended wilderness is chosen, the impacts would be fundamentally the same because the ultimate authority to designate wilderness does not rest with the FS, and recommendations may or may not be accepted.

Roadless Areas

The Forest Plan amendment alternatives do not include any guidance relating directly to roadless areas, and the Colorado Roadless Rule will continue to guide management of the roadless areas within the Hermosa watershed. Because the purposes of the Hermosa legislation are to preserve and protect many of the same resources that are identified as roadless characteristics, and because the proposed Plan amendment (under any of the alternatives) will implement the legislation, then by default, any of the Plan-level alternatives would also protect and enhance roadless characteristics in the long-term. For more specific details regarding impacts to the nine characteristics, refer to other corresponding sections of this EA such as the *Recreation*, *Watershed,* and *Wildlife* sections.

There are elements of the proposed Plan amendment under the action alternatives that could negatively impact some roadless characteristics in the short-term. This is because the Plan amendment includes desired conditions and objectives encouraging future actions such as vegetation management (in differing degrees in different action alternatives), and for use of prescribed fire as a management tool under all action alternatives. The roadless characteristics of soil, air, and water quality could be affected in the short-term during implementation of future actions, if they occur; for example, there would be soil disturbance from temporary roads and skid trails resulting from vegetation management, or air, habitat and recreation impacts during prescribed burning. However, long-term benefits would outweigh the short-term impacts.

Project-Level Impacts

Wilderness

The only project-level proposed action that would affect wilderness is the proposal under all action alternatives to remove three trails from the FS system in the wilderness, totaling about 18 miles. These are the South Fork, Neglected, and Big Bend Trails. Removal of these three trails may slightly reduce recreational opportunities, primarily from the accompanying proposed removal of the bridge crossing Hermosa Creek at the South Fork Trail (Alternatives 2 and 4). This bridge itself is outside of the wilderness, but accesses the South Fork Trail, which is mostly within wilderness. Users could still use the trails as non-system trails, just as they do the multitude of user-made trails in the wilderness, however, they would experience down trees, over growth, and trail tread erosion. Users that continue to use the old South Fork trail would need to ford Hermosa Creek. This could create difficulties for users if the creek is running high.

Since use is already so light on these trails, but would likely still continue to some degree, any reduction in opportunity would be negligible. The removal of several miles of maintained system trail in the wilderness would enhance the primitive and untrammeled character of the wilderness. Since the trails currently are in poor condition and would be very expensive to bring up to standard, their removal would also save maintenance money.

Roadless Areas

Project level proposals for recreation and travel management are primarily in areas outside of CRAs, including all road, developed facilities, and dispersed camping proposals. However, many of the trails or segments of trails are within CRAs.

Because Alternative 1 does not propose any changes to trails, there would be no impacts to CRAs under this alternative. Under the three action alternatives, initiation of seasonal restrictions on motorized and mechanized vehicle use would decrease trail rutting and sedimentation during wet conditions and would decrease wildlife disturbance; which in turn, would benefit the roadless characteristics of high quality soil and water, large undisturbed areas, and diversity of plant and animal communities. Conversely, proposed seasonal restrictions would lessen opportunities for vehicular use, which would reduce the roadless characteristic of primitive and semi-primitive recreation opportunities, but not during the peak seasons. Differences in designated types of use and seasons of use between action alternatives would slightly vary the recreational opportunities, but all action alternatives would still provide for adequate primitive and semi-primitive recreation in CRAs in the watershed. Addition of the West Cross Trail would slightly increase these recreational opportunities in a roadless area, where a segment of it crosses CRA, without substantially negatively impacting the other roadless characteristics. Some over-snow open areas overlap with the edges of CRA, but in areas that do not receive much over-snow use or grooming, and therefore impacts to roadless characteristics would be negligible.

There could be minor amounts of tree cutting associated with trail maintenance in CRA, but that would be allowed as "actions incidental to the implementation of an action not otherwise prohibited."

For more specific details regarding impacts to the nine characteristics, refer to other corresponding sections of this EA such as the *Recreation*, *Watershed*, and *Wildlife* sections.

Cumulative Impacts

There are no other past, present, or reasonably foreseeable management actions that would cumulatively impact wilderness or roadless areas within the Hermosa watershed.

Watershed, Riparian and Water Resources

Affected Environment

Landscape Setting and Climate

The Hermosa watershed straddles two major physiographic provinces, the Southern Rocky Mountains and the Colorado Plateau. This incredibly varied landscape includes layered sedimentary rock that gives way to the crests of the Rico and San Juan Mountains, formed from the San Juan uplift and subsequently sculpted by glaciers.

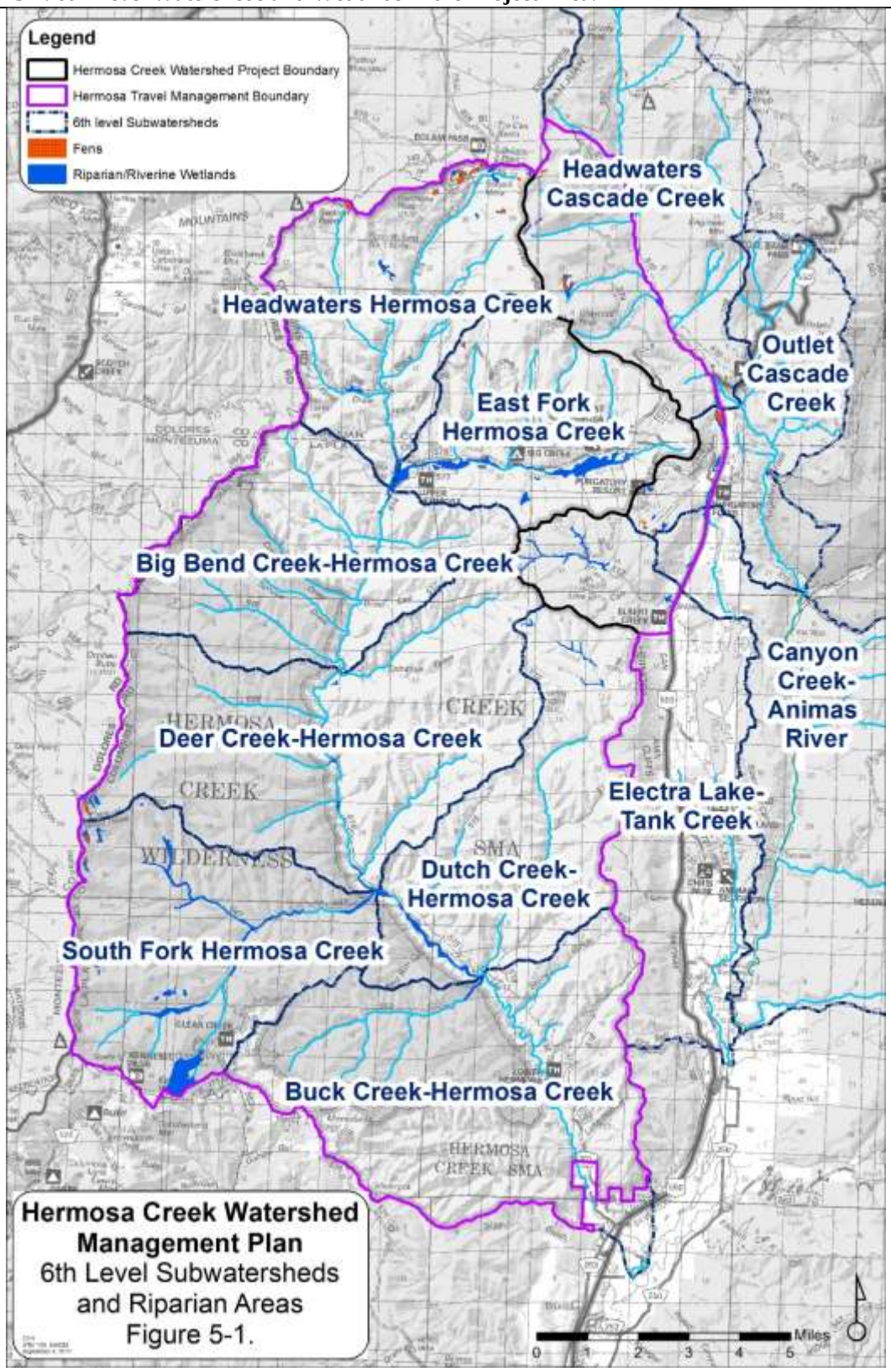
Semiarid southwestern Colorado receives atmospheric moisture during midwinter originating from the Pacific Ocean. This moisture produces heavy snowfall at the higher elevations that produces a spike in the streamflow with spring melt. From about mid-June to early October, monsoon-like thunderstorms are produced from the dissipating tropical storms of the Pacific Ocean and Gulf of California. Some of the largest floods on record have occurred during the monsoons (*Pruess 1996*).

The morphology of the streams reflects the geologic history and hydroclimatology of the analysis area. The mainstem of Hermosa Creek is fed by numerous steep gradient drainages that descend from the uplifted mountains. These drainages are generally step-pools and fairly resistant to high flow disturbances. These streams typically have coarse boulder and cobble channel beds. Floodplains are narrow or may be non-existent. Narrow valley bottoms promote high connectivity between hill slope and valley bottom, with debris flows and landslides episodically introducing sediment, wood and nutrients directly to the channel. Low gradient streams, such as the East Fork of the Hermosa and portions of the mainstem of the Hermosa, can be described as response reaches because of their tendency to accumulate excess sediment preferentially in pools (*Montgomery and Buffington, 1997*).

Watershed Assessments

The Hermosa Creek watershed is comprised of seven 6th level subwatersheds including: Buck Creek-Hermosa Creek, South Fork Hermosa Creek, Dutch Creek-Hermosa Creek, Deer Creek-Hermosa Creek, Big Bend-Hermosa Creek, East Fork Hermosa Creek and Headwaters Hermosa Creek. The extended travel analysis boundary includes portions additional subwatersheds: Headwaters Cascade Creek, Outlet Cascade Creek, and Elbert Creek which is part of the Electra Lake-Tank Creek subwatershed. The travel analysis boundary also includes a sliver of the Canyon Creek-Animas River subwatershed, but there are no roads or motorized trails within that part of the subwatershed so it will not be discussed. See Figure 5-1.

FIGURE 5-1. 6th-Level Watersheds and Wetlands in the Project Area.



Aquatic, Riparian, and Wetland Ecosystem Assessment: The Aquatic, Riparian, and Wetland Ecosystem Assessment was completed to describe the aquatic and terrestrial ecological characteristics of watersheds on the forest, as well as the influence upon them by anthropogenic activities. None of the subwatersheds within the Hermosa watershed boundary or travel management boundary were identified through this analysis as sensitive to anthropogenic disturbance such that they would require additional design features to minimize erosion.

Watershed Condition Classification: The Watershed Condition Classification was completed in 2012 and used 12 indicators composed of attributes related to watershed processes. The indicators and their attributes are surrogate variables representing the underlying ecological functions and processes that affect soil and hydrologic function. The indicators were summarized into a final rating of good, fair, or poor (*USDA 2011*).

While five of the seven subwatersheds in the Hermosa Creek watershed were rated as 'good' condition, the East Fork Hermosa and Dutch Creek subwatersheds were classified as 'fair' condition through this process. A Watershed Restoration Action Plan was developed for the East Fork of Hermosa Creek because of the presence of Colorado River cutthroat trout (*SJNF 2012*). The primary watershed condition parameters identified as fair or poor condition were "aquatic habitat and channel conditions, aquatic biota, open road and trail density, road proximity to water, soil productivity and erosion, rangeland vegetation and terrestrial invasive species, and forest health. Current channel condition problems include areas of incision, sloughing banks and a lack of natural large woody debris." The Action Plan includes a detailed list of projects which if completed, would move the watershed into a 'good' condition. While road and trail density was cited as a contributing factor to the fair rating, all subwatersheds in the project area currently meet the Forest Plan watershed road density guideline of 2 miles/square mile or less.

Water Quality

Beneficial Use classification: The streams and wetlands within the analysis area have been classified by the State of Colorado as having the following beneficial uses:

- Cold Water Aquatic Life 1
- Recreation E – existing primary contact use
- Water Supply
- Agriculture

Outstanding waters: The highest level of water quality protection applies to certain waters that constitute an outstanding state or national resource. The State of Colorado Water Quality Control Commission has designated Hermosa Creek (river segment 12C) as 'outstanding waters' from its headwaters to its confluence with Long Hollow, excepting East Fork Hermosa Creek. This designation was based on the quality of the water and the outstanding cold-water fishery that is contained in the basin and requires Hermosa Creek water quality to be maintained and protected at its existing quality. The East Fork of Hermosa Creek was excluded from this segment due to uncertainty of future development in this drainage by Purgatory Ski Resort (*CDH&E, June 2016*). Even though East Fork Hermosa Creek is not specifically designated as an Outstanding Waters, because it is upstream of the designated reach of Hermosa Creek, activities are still subject to analysis and satisfaction of the no-degradation requirement in a cumulative context.

Impaired and potentially impaired waters: Stream segments that are not fully supporting their designated beneficial uses by exceeding one or more numeric or narrative standards are defined as impaired and placed on the state's 303(d) List. All stream segments within the Hermosa watershed are currently meeting water quality standards for their designated beneficial uses. Concentrations of manganese in the Animas River downstream from the project area exceed water quality standards, however, the proposed project-level work within the watershed would not affect downstream manganese concentrations.

Municipal watersheds**:** Forest Service Manual 2542.05 defines a municipal supply watershed as one that serves a public water system as defined in Public Law 93-523 (Safe Drinking Water Act); or as defined in state safe drinking water regulations. The definition does not include communities served by a well or confined ground water unaffected by FS activities. The 1996 Safe Drinking Water Act Amendments established a new emphasis on preventing contamination problems through source water protection and enhanced water system management. Hermosa Creek is tributary to the Animas River, which is a source for Durango's water supply.

Wetlands/Riparian Areas

Background information: Wetlands are areas that are saturated by surface or ground water dominated by vegetation adapted for life in saturated soil conditions. There are approximately 3,800 acres of currently mapped wetlands within the analysis area (see Figure 5-1). Wetlands within the analysis area fall into two general types (*Cowardin 1979*): 1) *Palustrine Wetlands* are vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie. This type also includes the small, shallow, permanent or intermittent water bodies often called ponds. This type of wetland is less than 20 acres in size; and 2) *Riverine Wetlands* are where water is usually, but not always, flowing. Several other subcategories of wetlands may occur adjacent to the riverine type, often on a floodplain. The following discussion refers to riverine wetlands as riparian areas.

Stream health and assessment of riverine wetland (riparian) conditions: The following discussion will describe the diversity of riparian habitats found across the Hermosa Creek watershed and the stream health of the systems. Vegetation descriptions are taken from the Field Guide to the Wetland and Riparian Plant Associations of Colorado (*Carsey et al., 2003*). Stream health is defined as the condition of a stream versus reference conditions for the stream type and geology (*USDA Draft Technical Guidance Document for Determining Stream Health, 2006*). Reference condition refers to a minimally impaired site with the least anthropogenic influences occurring within an ecoregion. There are three stream health class definitions: robust, at-risk, and diminished. Robust stream health class occurs when the stream exhibits high geomorphic, hydrologic, and/or biotic integrity relative to its natural potential condition (as represented by a suitable reference condition); at-risk stream health occurs when there is moderate integrity relative to its natural potential condition; and, diminished stream health occurs when there is low integrity relative to its natural potential condition.

Only a small sample of the riparian resources present on the landscape have been assessed for this analysis, and stream health was determined based on:

- Proper Functioning Condition (PFC) Assessments were completed across the Hermosa watershed at various times in the past 15 years.

- Field review, site assessments, and photographs taken by the hydrologist and other staff and other resource professionals were used to make assessments.

Proper Functioning Condition (PFC) is a qualitative survey used to assess the hydrology, vegetation and erosional/depositional processes of riparian areas (*BLM TR 1737-15, 1998; BLM TR 1737-16, 1999, Revised 2003*). Riparian areas are rated "proper functioning condition", "functional-at-risk", or "non-functional". A rating of proper functioning condition means that all of the components (hydrology, vegetation, erosion/depositional features) are in place for the riparian area to function properly and there is nothing putting it at risk of degradation. These ratings can be related to the FS Region 2 Stream Health categories. A rating of "proper functioning condition" is equivalent to robust stream health; a rating of "functional-at-risk" is equivalent to at-risk stream health; and a rating of "non-functional" is equivalent to diminished stream health. All but one PFC data site have been rated as "functional at risk".

Low gradient headwater streams: The East Fork of Hermosa Creek valley is of glacial origin and is a low gradient (less than 2 percent) and highly sinuous channel with a well-developed floodplain. This type of stream is very dependent upon streambank vegetation for channel stability and is sensitive to disturbance. The riparian vegetation consists of sedges and willows. Current riparian conditions for the East Fork range between PFC to Functional-At-Risk (robust – at-risk stream health rating) with an upward trend. Past grazing practices, along with heavy recreational pressure have affected soil stability and vegetation composition to a degree. Livestock, heavy fishing pressure, dispersed campsites, and unimproved road crossings continue to alter streambanks and vegetative structure. Historic ditches near the confluence of the East Fork with Hermosa Creek are causing some channel incision and bank sloughing. Water yield increases are expected from future snow-making within the ski area boundaries; these impacts were analyzed and mitigated for under the ski are Durango Mountain Resort Development Plan EIS (*SJNF 2008*).

High gradient streams: Dropping off from the crest of the mountains are a number of high gradient, boulder lined streams that are resilient and not particularly sensitive to disturbance. Sig and Relay Creeks are prime examples of these types of drainages. These are step-pool systems with narrow 'v' shaped valleys. For the most part, these valleys are evergreen riparian forests with only a small component of narrowleaf cottonwood. The overstory is dominated by blue or Engelmann spruce with willow, red osier dogwood, and thinleaf alder in the shrub layer. The stream banks are often lined with thick mosses and a number of forb species such as bluebells and heartleaf bittercress. Aspect of the drainage and elevation influences plant associations. The riparian areas in the lower elevation drainages with southerly aspects, such as Buck Creek, are dominated by quaking aspen with abundant shrubs in the understory.

The majority of these drainages have minimal anthropogenic uses due to difficult access and are generally in the 'robust stream' health category but previous monitoring has indicated that some degradation has occurred to riparian areas in these stream types due to livestock and outfitting uses (*SJNF 2009*).

Moderately steep, rocky canyons: The mainstem of Hermosa Creek below and above the confluence with the East Fork typically has some lower gradient sections with well-developed floodplains and riparian areas that consist of narrowleaf cottonwood and several types of willow. Conifers can range from a minor component of these systems to a primary component of the

overstory. This stream is generally in the 'robust' stream health category. Previous monitoring described Hermosa Creek above Hotel Draw as 'at PFC...there was sufficient young alder, cottonwood and willow to stabilize the stream banks, though the willow has been heavily browsed" (*SJNF 2009*).

Springs and Palustrine wetlands: Springs, wetlands, seeps, fens, groundwater fed streams and riparian areas are examples of groundwater dependent ecosystems. Water beneath the land surface occurs in two principal zones, the saturated zone and the unsaturated zone. The voids or spaces between the grains of gravel, sand, silt, clay and cracks within rocks are completely filled with water in the saturated zone. The upper surface of the saturated zone is referred to as the water table or as an unconfined aquifer (*Winter 2002*). An unconfined aquifer commonly exists close to the ground surface and the quantity of flow discharging from it can reflect recent climatic cycles. A confined aquifer is one that is bounded by confining layers of geology.

In areas of steep land slopes, the water table sometimes intersects the land surface, resulting in ground-water discharge directly to the land surface. It is common to find wetlands and springs in Hermosa Creek watershed at the base of mountainsides.

Fens are a type of palustrine wetland with waterlogged substrates where at least 30 cm (approximately one foot) of peat has developed. Fens are dependent on groundwater and surface water inputs for water but due to their great mass of water-holding organic matter, peatlands are exceptionally stable and may persist for centuries (*USDA, 1998*). In fact, peat accumulation rates have been found to be as slow as 20 cm/1000 years in many areas (*Chimner and Cooper 2002*). Fens support a high concentration of rare and distinctive flora and are located in the alpine and subalpine setting.

The SJNF conducted aerial photo interpretation followed by field inventory in 2005 to create a spatial and tabular database named 'peatland fens'. Within the Hermosa watershed the 2005 inventory displays nine 'fens', and 36 wetlands with 'unknown' fen status. Sites that were categorized as 'unknown' fen status showed indications that they could be fens through aerial photography interpretation but have not been field verified. Within the analysis area, these fens and unknown fens equal 52 acres and 57 acres, respectively, and are scattered in the high elevation Bolam Pass, Cape of Good Hope and headwaters of Pando Creek areas. The fens in the Bolam Pass area, along Road 578, were successfully stabilized in the 1990s and other fens in the analysis area are in good condition with the exception of one fen at Tin Can Basin that lies across the divide between the Dolores and Columbine Districts. This 16 acre fen is threatened by a headcut originating from Road 578B, which is currently an ML2 road and crosses an area of numerous springs, seeps, small streams that feed into a large wetland and fen complex. This native surface road develops a series of deep mud holes along its length due to the organic soils and this, in turn, leads to periodic braiding of travel routes. Because of the remoteness of the road, maintenance of the road surface has historically been very rare and would continue to be rare in the future. The road is within 100 feet of the fen on the Columbine District and has caused downcutting and dewatering of the fen, and is indirectly affecting the wetland complex by diminishing the water quality and quantity of surface and ground water inputs. Additionally, the motorized single-track East Fork Trail is located along Road 578B for part of its length.

Environmental Consequences
Plan-Level Impacts

Guidance for the management of watershed, riparian, and water resources is set forth in the Forest Plan (*SJNF 2013*); the Hermosa Plan will supplement this guidance with desired conditions, guidelines and objectives specific to the water and riparian resources of the project area. Under Alternative 1, the Hermosa Creek watershed would be managed in accordance with the Forest Plan and the Hermosa Creek legislation. Alternatives 2, 3 and 4 would utilize direction found in the Forest Plan, the legislation, with the addition of guidance in the Hermosa Plan.

Under Alternative 1, existing impacts to riparian and water resources would be expected to continue in their current scope and intensity. The majority of impacts are associated with the existing road and trail network, recreational uses, livestock grazing, and activities at Purgatory Ski Area. The existing road and trail network has resulted in accelerated rates of erosion in isolated areas, particularly in the vicinity of stream crossings or where a road is closely connected to a stream. Impacts from livestock grazing are dependent on many factors, including timing, frequency, duration, and intensity of grazing. Impacts can include trampling of plants and streambanks, direct removal of plant material through grazing, and impacts to the litter layer and soil. Currently, active allotments within the Hermosa Creek watershed rely on an adaptive management system, which uses monitoring information to determine if management changes are needed, and if so, what changes, and to what degree. Under Alternative 1, the impacts of grazing would be monitored to determine what impacts livestock are having on wetlands, riparian areas and stream banks. If unacceptable impacts are identified, then management actions would be taken to eliminate or mitigate impacts.

Over-snow motorized travel causes varying degrees of snow compaction depending on the frequency and intensity of snowmobile use. Snow compaction, in turn, can impact water resources depending on the aerial extent and location of the compaction as well as the overall depth of the snow when use occurs. For example, increased frost penetration into soils under compacted snow could reduce the growing season and plant phenology in the fragile fen environment. A study evaluating snow compaction resulting from snowmobiling and snow cat use in northern Colorado found no indications of impact to fens because of the deep snowpack of the study area. The same study, however, found indications of deeper and longer soil freezing resulting from mechanized grooming at Telluride ski area fens. These particular fens had shallower snow depths than conditions in the northern Rocky Mountains combined with more intensive and frequent snow compaction (*Cooper 2013*). Snowmobiles also emit pollutants that accumulate in the snowpack which is more likely to be reflected in streamflows when use occurs within the riparian corridor. Currently, there is no evidence of water quality impairment from Colorado's Water Quality Control division due to over snow vehicle emissions. Over-snow motorized travel occurs within the upper three subwatersheds within the SMA, and the headwaters of Cascade Creek and Electra Lake – Animas subwatersheds, outside of the SMA. All alternatives identify the riparian corridors of the East Fork of Hermosa and the Upper Hermosa mainstem (upstream from the East Fork) as suitable for over-snow motorized travel. Alternative 1 does not identify the alpine and fen-rich Graysill Mountain area as suitable, although this does not reflect actual use patterns for over-snow vehicles.

Alternative 2 includes objectives for vegetation treatments to achieve a desired mosaic of cover types. These activities would comply with watershed conservation practices and standards in the Forest Plan which would minimize impacts on water and wetland/riparian resources. Two proposed restoration objectives (3.28.20 and 3.28.21) included in all action alternatives would contribute to improved riparian and watershed health and stream stability. In addition, a guideline (3.28.63) related to grazing management under Alternatives 2 and 4 would include measures to exclude livestock when stream health is at risk or diminished, or when streambank and riparian restoration is occurring. The alpine and fen-rich Graysill area, as well as the Elbert Creek area, would be identified as suitable for over-snow motor vehicle use under this alternative. Under all action alternatives, the impacts of grazing and snowmobile use would be monitored in the East Fork of Hermosa Park to determine what impacts uses are having on wetlands, riparian areas and stream banks. If unacceptable impacts are identified, then management actions would be taken to eliminate or mitigate impacts. Proposed Forest Plan Guideline, 3.28.22, would be included in all action alternatives and would aid in the management of permitted over-snow motorized activities on fens within the watershed. The current water quality in Hermosa Creek would be expected to be maintained under this alternative.

The types of impacts associated with Alternative 3 would be identical to those described under Alternative 2; however guideline 3.28.63 would include measures to exclude livestock only when streambank and riparian restoration is occurring.

The types of impacts associated with Alternative 4 would be marginally less in scope and intensity from Alternative 2 since objectives for vegetation treatment would not be included, and the guideline (3.28.23) to restore stream and spring crossings when ML1 roads are used for project work would be included. Areas identified as suitable for over-snow travel would be reduced under this alternative from other alternatives but would still include the East Fork and Upper Mainstem of the Hermosa riparian corridors as well as the Graysill Mountain alpine area.

Project-Level Impacts

Water Quality

The water quality parameter most likely to be affected by the roads, trails, dispersed camping and campground development is sediment. The Colorado Division of Water Quality requires surface waters to be 'free from substances attributable to human-caused point source or nonpoint source discharge … which can settle to form bottom deposits detrimental to the beneficial uses. Depositions are stream bottom buildup of materials which include…silt, or mud' (*CDH&EQ, 2013*).

Rainstorm events and intercepted spring water can result in water flowing down roads, trails and disturbed sites. The water entrains sediment from the route surface. The risk of sediment being deposited into the drainage network is highest where routes or disturbed sites are located near to, or cross streams. Gravelling, or surfacing, roads has been shown to reduce suspended sediment levels in nearby streams, particularly at stream crossings (*Brown et al, 2014*) compared to native surface roads. Also, road and trail crossings that are poorly designed or located in sensitive stream types can increase the likelihood of channel instability and subsequent stream bank erosion upstream and downstream from the crossing. The intensity of use also effects sediment

generation from roads, a heavily used road contributes 130 times as much sediment as an abandoned road (*Reid, 1984*).

Under Alternative 1, the "300 foot rule" for parking would remain along Road 578. Over time, this could lead to more disturbed dispersed camping sites and associated sedimentation along the East Fork and mainstem of Hermosa Creek, where topography allows for access. This would include the area near the Hermosa Creek Trailhead and the meadows near the confluence of Corral Creek with the mainstem. This alternative would also keep all existing ML1 roads on the system. These roads are not currently causing sedimentation issues in the watershed because they are not being used and are revegetated, however, they could be used in the future, and therefore pose some potential for future disturbance. Under this alternative, the low water crossings on both Roads 578 and 577 would continue to contribute to channel instability and associated sedimentation.

Alternative 2 includes the reduction of over 55 miles of ML1 roads from the system, which reduces potential for future disturbance and stream sedimentation. This alternative would also eliminate a currently unauthorized stream crossing on Hermosa Creek that is currently used to access a dispersed campsite. This alternative includes replacing the Roads 578 and 577 low water crossings with bridges/culverts and would not downgrade 1.5 mile of Road 578 to ML2. Both of these factors would greatly benefit water quality in Hermosa Creek. However, under this alternative, the proposed developed campground would be south of the East Fork of Hermosa Creek. This would entail construction of a full size bridge across the creek causing short term disturbance and possible sediment introduction to the drainage during construction.

Alternative 3 would result in the most overall road miles, as well as the addition of a new >50" wide motorized trail with four stream crossings on Pasture Creek, tributary to the East Fork of Hermosa. In the East Fork of Hermosa WRAP, open road and trail density was identified as a factor in the 'fair' rating, even though the watershed is currently within Forest Plan density guidelines. Addition of the Pasture Creek Trail would increase motorized trail and road density within this basin, but it would still be within watershed Forest Plan density guidelines. This alternative would designate all existing camp spur roads, many of which are highly connected the drainage network, and would include the spur road with the stream crossing on the mainstem of Hermosa. This alternative also includes a new developed campground on the south side of the East Fork of Hermosa Creek, which would entail construction of a full size vehicle bridge causing short-term disturbance and possible sediment introduction to the drainage during construction, but would reduce direct sediment introduction from the roads and improve channel stability in the long-term. Because of these factors, this alternative has the most potential of all the alternatives for sedimentation of the drainage network. However, this is offset to some degree by keeping the Hermosa Park Road 578 as a ML3 road for the same mileage as it is currently, ensuring that road surfacing would be maintained.

Alternative 4 would reduce the miles of ML1 roads the most of all alternatives. This alternative would not designate the stream crossing camp spur, and it would also designate fewer feet of camp spurs and keep them further from the banks of Hermosa Creek. Location of a developed campground on the north side of the East Fork of Hermosa Creek would eliminate the need for a full size bridge over the creek and the associated short term disturbance and possible sediment introduction associated with large bridge construction. However, Alternative 4 includes the

downgrading 1.5 miles of the Hermosa Park Road 578 to ML2. This would mean that road surfacing would not be maintained, which would in time increase the potential for sedimentation to Hermosa Creek especially at the Road 578 low water stream crossing. This alternative would also increase the mileage of ML2 roads near streams from the existing condition by a small amount.

Currently, the waters within the analysis area meet water quality standards for sediment and other parameters. Additionally, all action alternatives for this proposed project would meet the Forest Plan Standard and *Executive Order 11988* regarding floodplain management. Alternative 4 and Alternative 2 provide similar benefits to water quality and both would be more likely to move the drainage network towards desired conditions than either Alternatives 1 or 3.

Wetlands/Riparian Areas

Although riparian areas and wetland ecosystems are small in extent, they represent a very important ecological component of the SJNF. The Forest Plan recognized this with four standards aimed at maintaining or restoring the composition, structure and function of these ecosystems which add to *Executive Order 11990* "…to minimize destruction, loss, or degradation of wetlands and to preserve the natural and beneficial values of wetlands." Applicable Forest Plan standards are as follows:

- Long term adverse effects to the hydrology, soils, and vegetation of fens and hanging gardens from management activities in or adjacent to them (including motorized travel, road construction…) must not occur. 2.4.19
- Agency actions in protected areas must not adversely affect the long-term ecological integrity of the riparian area and wetland ecosystems within them. 2.4.20
- Management actions must not cause long-term change away from desired conditions in riparian or wetland vegetation communities. 2.4.21
- Activities must not be allowed within aquatic management zones that will cause a long term change from desired conditions. The protection or improvement of riparian values, water quality, aquatic community, and for long-term stream health in these areas must be emphasized. Aquatic management zones have a minimum horizontal width from the top of each bank of 100 feet of the mean height of the mature late-seral vegetation, whichever is greater. 2.6.30

Wetlands, including fens, can be indirectly impacted by increased sediment deposition routed from a nearby disturbed surface, such as a road or trail. A nearby disturbed surface can also indirectly alter the hydrology of a fen or wetland by changing the flow paths of surface water into a wetland or by creating rills that headcut into a wetland leading to dewatering. Wetlands can be directly impacted by a route traversing through the wetland without a sustainable surface. In this case, ruts form that can alter hydrology and drain the wetland.

Vehicle access to dispersed camping sites can also cause degradation to wetlands and riparian areas through rutting and soil compaction. Over time, driving for dispersed camping tends to sprawl bigger and bigger as users seek out less dusty or muddy locations on the edges of sites. Under all the action alternatives, parking vehicles for dispersed camping would be restricted to one vehicle length from the Hermosa Park Road 578 and its proposed designated camp spurs, which would benefit riparian and wetland areas along this popular corridor. There are minor

differences (under 0.3 miles) between the action alternatives in terms of the miles of new designated camp spur roads within riparian areas: Alternative 4 has the least mileage followed by Alternative 2, and Alternative 3 has the most.

Under Alternative 1, the "300 foot rule" for parking would remain along Road 578, and over time, this could lead to more disturbance of riparian areas by dispersed camping along the East Fork, Hermosa Creek Trailhead area, and the meadow areas near the confluence of Corral Creek with the mainstem of Hermosa Creek. Road 578B would remain an open ML2 road near the fen at Tin Can Basin and would continue to exacerbate the headcut threatening the fen, as well as disrupting spring flows that support the fen and wetland area. The stream crossings on Roads 577 and 578 would remain low water fords causing destruction of riparian vegetation at those locations. It is well documented that the greater the depth of the snow, the less likely the impacts from over-snow motorized use. This includes direct mechanical impacts to riparian vegetation and stream banks as well as the formation of soil frost and ice layers resulting from snow compaction (*Cooper 2009*). Grooming of the Hermosa Park Road (NFSR 578) for over-snow vehicles currently occurs as soon as there is 6 inches of snow covering the road and grooming extends over Bolam Pass, down to Highway 145 and beyond. Snowmobile use currently occurs on the fens in the Bolam Pass area and would continue under all the alternatives although uses are not expected to be of the intensity or frequency that would cause significant snow compaction and soil freezing. Also, given the high elevation, the snow depths are substantial during the time period that snowmobiles can access the Bolam Pass fens. The East Fork of Hermosa Park, near the backside of Purgatory Ski Area, is a popular play area for recreational snowmobilers and guided snowmobile use. Most outfitter and guide permitted use in the park occurs over the winter holiday when there is generally greater than 18 inches of snow depth however, recreational snowmobiling in the East Fork Park could occur under lower snow conditions in early and late season. Monitoring snow compaction impacts on the East Fork of the Hermosa would not occur under this alternative. Future over-snow motorized vehicle projects, such as grooming or outfitter-guide use, would not be considered in the Graysill Mountain and Elbert Creek areas. This alternative does not meet Forest Plan Standard 2.4.19 or *EO 119900* due to the impacts of Road 578B on the fen. This Alternative meets 2.4.20, 2.4.21 and 2.6.30. This Alternative is the least likely to move riparian resources towards desired conditions of the alternatives.

Alternative 2 proposes to add the Cutthroat and West Cross Trails to the system. The Cutthroat Trail which is located along and through the riverine wetland area associated with the East Fork of Hermosa Creek and includes several stream crossings. Wetland soils are organic soils and have very little bearing strength and can be fully saturated most of the growing season which further reduces the soils structural stability. Minor realignments and specialized trail construction techniques, such as turnpikes, would likely be necessary to minimize damage to riparian resources and provide a sustainable trail tread in this area. This alternative proposes to remove three trails in the wilderness that are highly connected to drainages, resulting in potentially less use and less impacts to the adjacent streams. Road 578B would be closed near the junction with FSR 578 and converted to a single-track motorized trail; the removal of full-sized vehicles from this route and the narrowing of the road bed would be beneficial to the springs/seeps and small streams that feed the fen and wetland complex. The motorized trail would be maintained to avoid long-term adverse effects to springs/seeps/wetlands. Installation of

a bridge/culvert at the Road 578 Hermosa Creek crossing is proposed under this alternative and this would reduce the footprint of the current low water crossing in the riparian area at this site. A full size bridge/culvert is also proposed at the Road 577 East Fork Hermosa Crossing which would be better than the current low water crossing, but would be a larger footprint in the riparian area than an OHV bridge as proposed in Alternative 4. Monitoring of snowmobile use in the East Fork of Hermosa would occur under this alternative, and if unacceptable impacts are identified, then management actions would be taken to eliminate or mitigate impacts. Current over-snow motorized vehicle outfitter and guide uses would continue in the Graysill Mountain area and could expand into the Elbert Creek areas under this alternative. Proposed Forest Plan Guideline, 3.28.22, would be included in all action alternatives and would aid in the management of permitted over-snow motorized activities on fens within the watershed. Forest Plan Standards 2.4.19, 2.4.20, 2.4.21, 2.6.30 and *EO 11990* would be met under this alternative. Alternative 2 would move riparian and wetland resources towards desired future conditions for riparian areas and dispersed camping more rapidly than Alternatives 1 and 3.

In terms of wetland/riparian resources, Alternative 3 differs from Alternative 2 by increasing the trail network by adding the Pasture Creek Trail motorized loop, which could result in illegal use of the dense network of closed timber roads in that area if proper physical closure of these routes is not conducted; this would result in additional watershed impacts. This alternative also proposes to designate the low water camp spur stream crossing as a road across Hermosa Creek. Forest Plan Standards 2.4.19, 2.4.20, 2.4.21, 2.6.30 and *EO 11990* would likely be met under this alternative. Alternatives 2 and 4 would move riparian and wetland conditions towards desired conditions more quickly than this alternative.

Overall, Alternative 4 would provide the most benefits to wetlands, fens and riparian areas of the alternatives. This alternative would only add one new trail (West Cross) and would remove three trails that are highly connected to drainages. Road 578B would be closed near the junction with Road 578 and converted to a non-motorized trail. The removal of full sized vehicles from this route and the narrowing of the road bed would be beneficial to the springs/seeps and small streams that feed the fen and wetland complex. The trail would be maintained to avoid long-term adverse effects to the fen, and removal of motorized uses from the East Fork Trail would reduce user group pressure on the trail making maintenance of a sustainable trail tread more likely. Under this alternative, the proposed OHV bridge over the East Fork of Hermosa would have a smaller footprint in the riparian area than a full size vehicle bridge and produce less sediment than a low water ford. This alternative does not include over-snow motorized vehicle open areas in the Elbert Creek and Hotel Draw areas. Monitoring of snowmobile use impacts on the East Fork of Hermosa Creek would occur under this alternative. Proposed Forest Plan Guideline, 3.28.22, would be included in all action alternatives and would aid in the management of permitted over-snow motorized activities on fens within the watershed. Forest Plan Standards 2.4.19, 2.4.20, 2.4.21, 2.6.30 and *EO11990* would be met under this alternative. Alternative 4 would move riparian and wetland resources towards the dispersed camping and riparian desired conditions more quickly than Alternatives 1, 2, or 3.

Cumulative Impacts

Past and present actions such as livestock grazing, road and trail related impacts, and impacts from visitation have had impacts on the Hermosa Creek watershed. Reasonably foreseeable future activities that could have an impact include ongoing road and trail related impacts, new trail construction and maintenance, increased recreational use and development associated with Purgatory Ski Area.

Ski area operations, including snow making and past and future vegetation management, may have a cumulative impact on East Fork Hermosa Subwatershed as far as increased sediment and increased water yield. The approved Durango Mountain Resort (Purgatory) Ski Area improvement plan provided for many mitigation measures designed to reduce these past impacts and improve watershed conditions. The objectives and guidelines included in the Hermosa Creek watershed Plan would provide additional improvement within this subwatershed.

Current road densities for 6^{th} level sub-watersheds in the Hermosa Travel Management analysis area do not exceed 2 mi/mi^2 and therefore meet Forest Plan Guideline 2.13.27. The combination of these past, present, and foreseeable future activities would have a negligible to minor cumulative impact on the health or municipal uses of the Hermosa Creek watershed and this watershed would be expected to meet FS Management direction for watershed resources under all action alternatives.

Vegetation

Affected Environment

Cover Types and Forest Health

The majority of the Hermosa Creek watershed is forested with aspen and spruce-fir forests. The Hermosa area is also characterized by large open meadows and steep rocky shrub fields. A small portion of the SMA is alpine. Tables 5-1 and 5-2 show the acres and percentage by vegetation cover type and by the amount of old growth within the Special Management Area (SMA) and within the Hermosa Creek Wilderness. Figure 5-2 displays the vegetative cover types within the watershed.

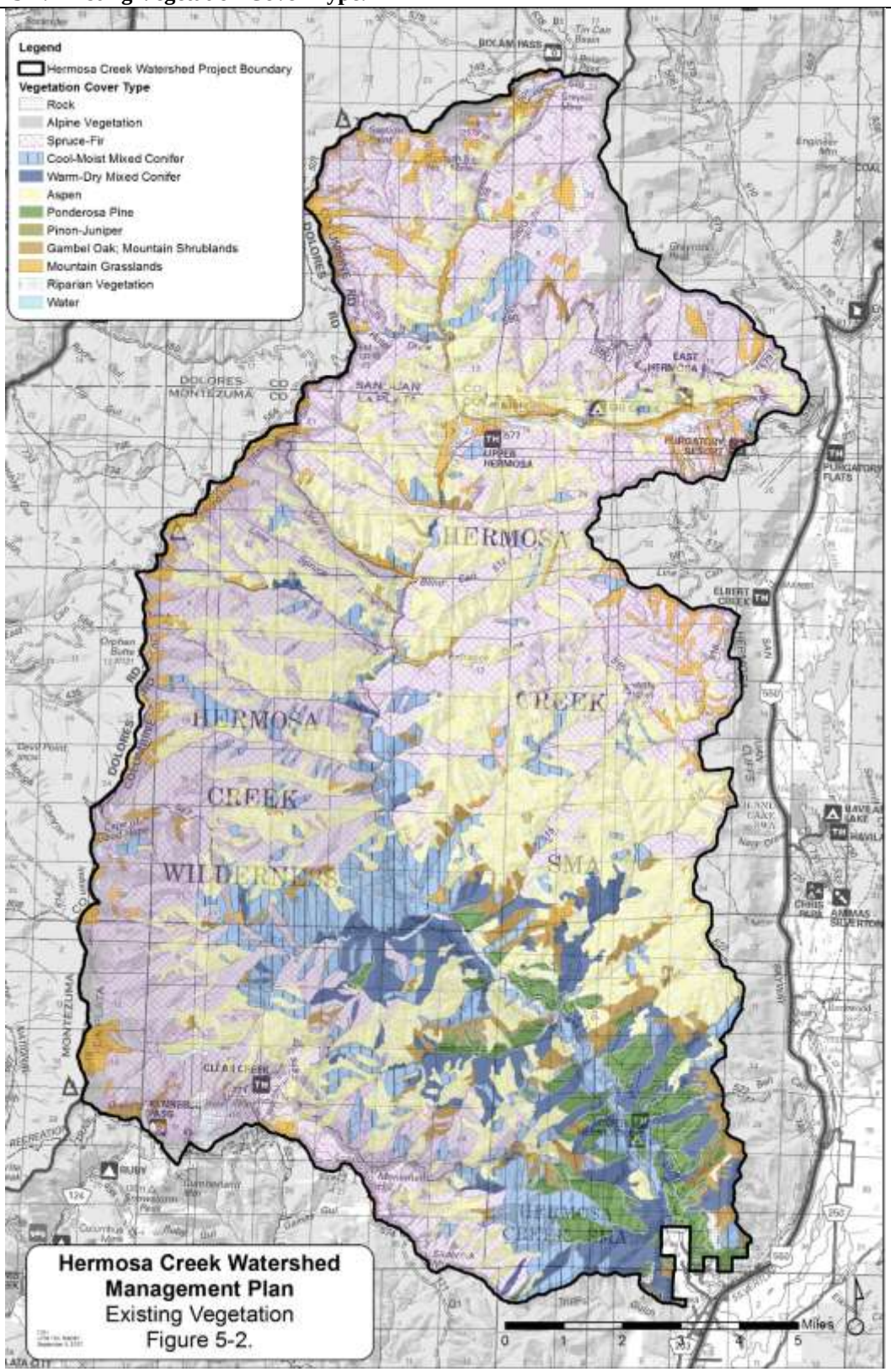
TABLE 5-1. Acres by Vegetation Cover Type within the SMA.

Cover Type	Acres in SMA	% of SMA	Acres Old Growth in SMA	% Old Growth by Cover Type in SMA
Alpine	1322	2%		
Meadow	4077	6%		
Shrub	2350	3%		
Rock	509	1%		
Riparian	668	1%		
Aspen	22847	32%	548	2%
Cool-moist Mixed Conifer	5735	8%	546	10%
Warm-dry Mixed Conifer	3778	5%	675	18%
Ponderosa pine	3225	5%	1231	38%
Spruce-fir	25921	37%	4025	16%
Total Forested	62175	88%		11%
Total	**70,450**		**7,026**	**10%**

TABLE 5-2. Acres by Vegetation Cover Type within the Wilderness.

Cover Type	Acres in Wilderness	% of Wilderness	Acres Old Growth in Wilderness	% Old Growth by Cover Type in Wilderness
Alpine	622	2 %		
Meadow	1131	3 %		
Shrub	1060	3 %		
Riparian	537	1 %	30	7 %
Aspen	10237	27 %	20	0.2 %
Cool-Moist Mixed Conifer	4527	12 %	431	10 %
Warm-Dry Mixed Conifer	2413	6 %	65	3 %
Ponderosa pine	801	2 %	107	13%
Spruce-fir	16048	43%	4602	29%
Total Forested	34025	91%		
Total	**30463.14**		**5254**	**14%**

FIGURE 5-2. Existing Vegetation Cover Type.

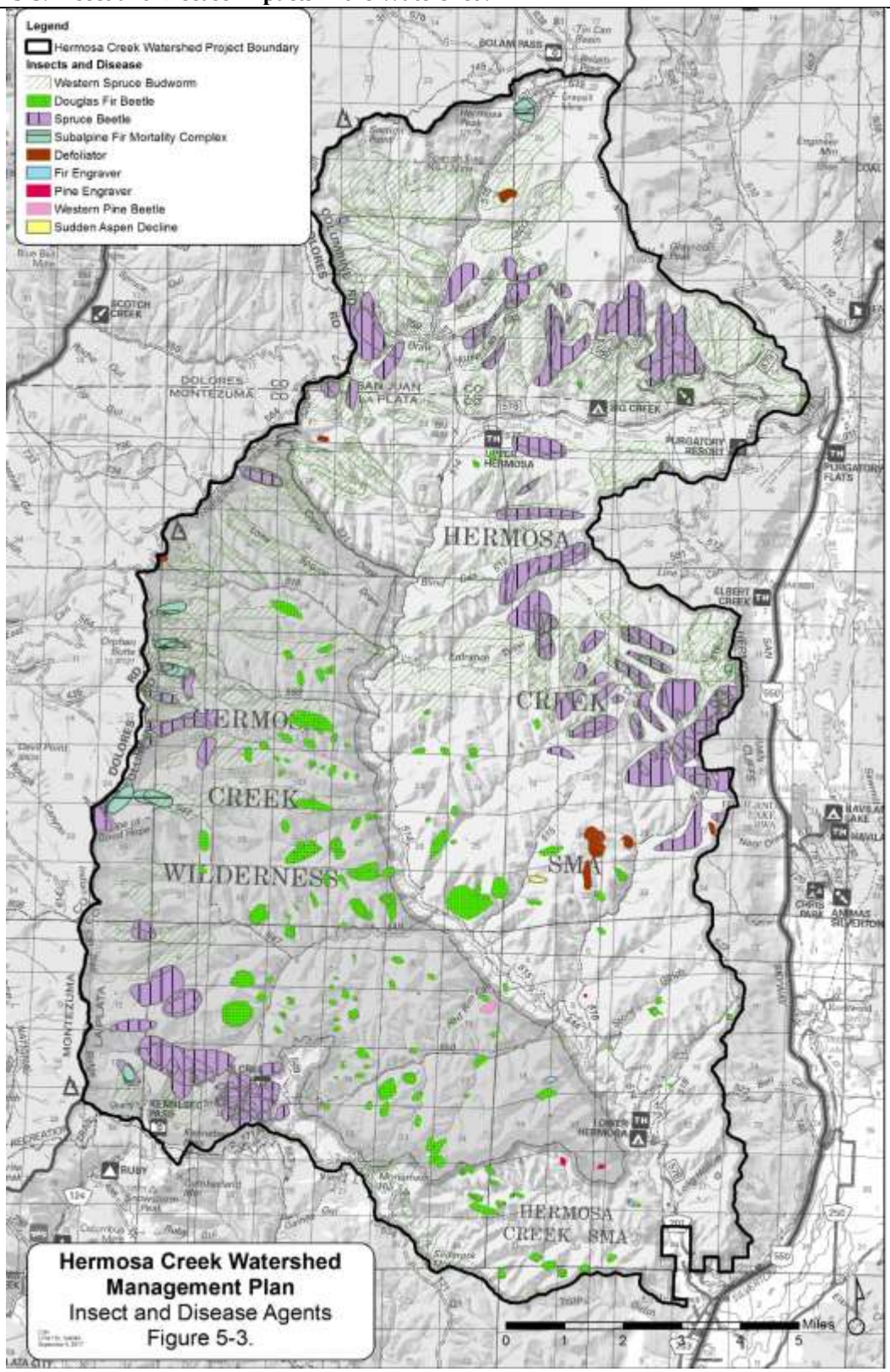


The vegetation within the Hermosa area has been shaped by historic fires, insects and diseases, historic livestock grazing and timber harvest. Approximately 180 years ago, a large stand replacement fire burned through the eastern portion of the SMA. Following the fire, the area regenerated to large aspen stands and second growth spruce-fir forest with large open meadows. The portion of the Hermosa Creek watershed that did not burn has older stands interspersed with smaller meadows. Both of these types of forests are considered mature, but the unburned forest has more stand diversity and understory regeneration. Broadcast prescribed burns were conducted in the project area in 2008 and reduced fuels across 5,005 acres.

The first recorded timber sales in the analysis area are in the 1960s, however some sanitation salvage occurred before that time. During the 1960s and 1970s, several timber sales with large clear cuts were cut and subsequently planted with either lodgepole pine or Engelmann spruce. Success rates of the reforestation varied. Most of this activity was in the northern portion of the SMA along Relay Creek Road 580 and along the East Fork of Hermosa Creek. In the early 1980s through 2000, a few timber sales that thinned stands and created small (1-2 acre) openings were cut and subsequently planted with Engelmann spruce. Total timber harvest from 1960-2000 is about 8,000 acres.

Mortality from insects and diseases has been increasing. Armillaria root disease is very active in the project area. This fungus kills or weakens subalpine fir and weakens the roots of Engelmann and blue spruce making them more susceptible to wind throw. Weak trees are also more susceptible to secondary hosts such as spruce beetle, western balsam bark beetle, and Douglas fir beetle. Two defoliators that have been very active in the project area are spruce budworm, which attacks the new growth of spruce and fir, and tent caterpillar, which causes defoliation in aspen. Neither of these defoliators kill the trees, but they stress them and make them more vulnerable to attack by other insects or diseases. If the epidemic lasts for three years or more, some young trees may die. Within the SMA, approximately 20,600 acres have been impacted from insects and disease, and within the wilderness, 11,763 acres have been impacted (see Figure 5-3). The majority of these acres are from budworm and tent caterpillar; however, there are approximately 9,000 acres of high mortality patches from spruce beetle, Armillaria and western balsam bark beetles. The largest areas are over 200 acres in size. It is expected that this trend will continue and the project area will see high spruce and subalpine fir mortality over the next five years.

FIGURE 5-3. Insect and Disease Impacts in the Watershed.



Downscaled climate change analysis by Colorado University and the National Oceanic Atmospheric Administration for the SJNF shows the following modelled average changes in minimum and maximum temperature and moisture changes for the SJNF by 2050 (*Rangwala 2012*).

TABLE 5-3. Modeled Changes in Temperature and Precipitation.

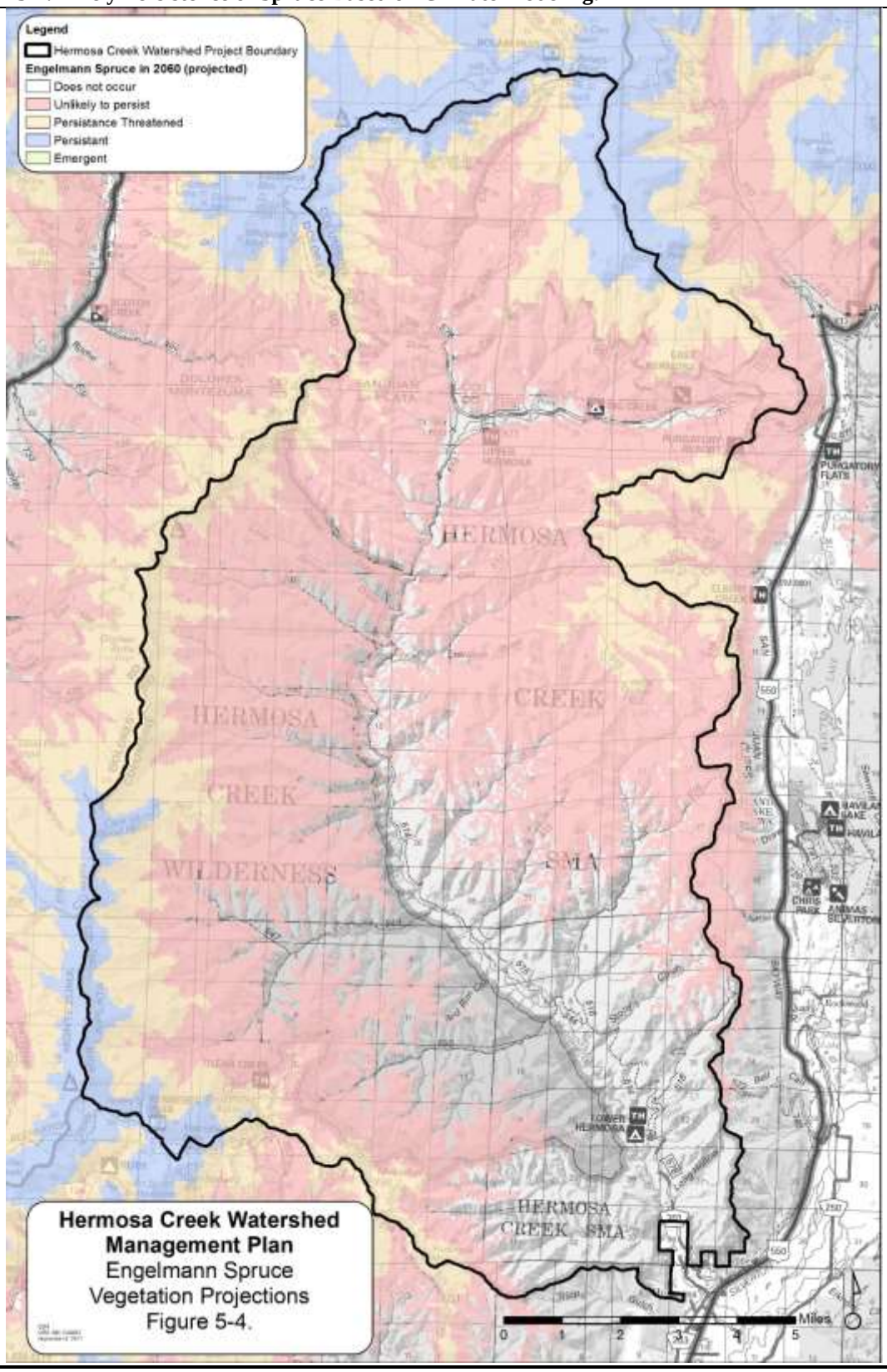
	Change in Max. Temp (°F)	Change in Min. Temp (°F)	Change in Precip. (%)	Change in Precip. (in)
Winter	+4.5	+5.7	+4	+0.2
Spring	+5.0	+4.5	–5	–0.4
Summer	+6.7	+5.5	–17	–0.9
Fall	+5.7	+4.9	–9	–0.5

Warmer temperatures during the spring and fall are expected to result in longer growing seasons, and warmer temperatures during the summer are expected to result in more drought stress and lower soil moisture in the lower to mid elevations. Warm spring temperatures will also result in earlier snow melt.

Vegetation cover type is limited by maximum summer and minimum winter temperatures, moisture, and fire history. Vegetation cover types such as mountain shrublands, mountain grasslands, and aspen have a wider tolerance to temperature changes in both winter and summer, and therefore are expected to be more resilient to climate changes; while alpine cover types and spruce-fir forests are more vulnerable to climate changes since they have a narrow tolerance to temperature changes. Changes in climate also affect changes in other ecosystem processes and disturbances, such as the timing and accumulation of snow, the rate of snow melt, the size, severity and extent of fire, and the size, longevity and severity of insect and disease outbreaks. Vegetation cover types that re-sprout, such as aspen and Gamble oak, will be more resilient to disturbances than species that do not re-sprout and mature slowly, such as Engelmann spruce.

The SJNF worked with Colorado Natural Heritage Program to consider how vulnerable each forest cover type is to a changing climate. The result of that study identified spruce-fir forests to be the most vulnerable cover type to climate change, and montane shrubland to be the most resilient (*Decker and Rondeau, 2014*). Additional analysis conducted by Rocky Mountain Research Station and Forest Health Protection, Rocky Mountain Region, Gunnison Colorado (*2016*) mapped potential forest cover type distribution under the projected climate change scenario for 2060; Figure 5-4 shows the projected distribution of spruce. Projected distribution is based on environmental variables that are the primary drivers for the forest cover type, and the probability of having an appropriate climate to persist under a projected future climate (*Worrall et. al., 2016*). "Persistent areas" are areas where the forest cover type is growing currently and that have a high probability for the appropriate climate in the future. "Emergent areas" are areas where the species does not currently exist, but it is expected that under the projected modelled climate change, the climate will exist for the species in the future and are areas where the species may grow if soils and other factors allow it.

FIGURE 5-4. Likely Persistence of Spruce Based on Climate Modeling.



Healthy growing forests can sequester carbon dioxide from the environment and store it for the life of the tree. Once the tree dies and begins to rot, the carbon dioxide that was stored returns to the atmosphere. If the organic matter becomes part of the soil, the carbon can be stored for centuries. The larger a tree grows, the more it can store; the denser a forest is, the more it can store; and the slower the decomposition rate, the more the forest can store. Within the project area, healthy spruce-fir forests have the highest carbon storage, based on Forest Vegetative Simulator models. These species of trees grow tall and can support higher tree densities than the other forest cover types. Aspen and cool-moist mixed conifer are also good at storing and sequestering carbon. In the areas with high tree mortality, the forest will begin to release carbon to the atmosphere.

The forests have a diversity of understory flowering plants, shrubs and grasses. Meadows are dominated by Thurber's fescue and other grasses. Alpine tundra tends to be dominated by low growing flowering plants, with swales of alpine species of willows. Factors influencing the health and distribution of the herbaceous component of the forest include livestock grazing, recreational uses such as over snow travel and camping, fire, drought and forest canopy changes. Forest meadows are areas where livestock and recreational uses congregate. Livestock grazing can influence the species and abundance of grass and forbs. Campers and other off road recreation can compact soils and reduce vegetation cover, over snow travel can compact the snow and change vegetation cover or species distribution and forest canopy reduction can cause understory vegetation to thrive and increase. Currently the alpine and mountain grasslands are considered to be in a healthy condition with small areas of high impact.

Special Status Plants

A Biological Evaluation was prepared to address the potential impacts of the project on federally listed and FS Region 2 sensitive species (*Hooley and Brinton 2017*). No federally listed plant species were identified as potentially occurring in the analysis area, therefore there are "no effects" to those species, and they will not be discussed further.

There are 24 FS Region 2 sensitive plant species known or suspected to occur on the SJNF which were considered for this project. Habitat and distribution for these species was reviewed, and seven species were then discounted and dropped from further review due to lack of appropriate habitat. The 17 remaining species have habitat or potential habitat within the project area, and were analyzed further. Table 5-4 lists the species, their habitats, and whether they have potential to occur in the project area.

TABLE 5-4. FS Region 2 Sensitive Species with Potential to Occur on the SJNF.

Species	Habitat	Potential to occur in Project Area (PA)
Non-Vascular		
Sphagnum angustifolium sphagnum	As floating mats, carpets, and/or hummocks in fens, open mires, sedge fens and muskegs	Yes
Sphagnum balticum Baltic sphagnum	Abundant in hollows and floating mats in raised bogs and poor fens; low to high elevation	Yes
Monocots		
Carex diandra lesser panicled sedge	On floating and non-floating mats of peat, at pond edges, on hummocks in open shrub and sedge meadows; 6,100 –8,600 ft.	Yes
Cypripedium parviflorum Lesser yellow lady's slipper	Ponderosa pine, Doug-fir, aspen and spruce-fir forest; on the SJNF has been found in pine/oak stand at 8,000 ft.	Yes- CNHP reported location

Species	Habitat	Potential to occur in Project Area (PA)
Epipactis gigantea stream orchid or giant helleborine	Decomposed sandstone; sandstone seeps; nutrient rich habitats with moisture; <8,000 feet	Yes
Eriophorum chamissonis Chamisso's cottongrass	Montane fens, swamps and bogs at high elevations 10,400-12,000 feet.	Yes
Eriophorum gracile slender cotton-grass	Sedge meadows and floating bogs in saturated soil to shallow standing water at 6,900 – 8,000 feet	Yes
Triteleia grandiflora largeflower triteleia	Ponderosa pine forest, known only from one location on the Dolores Ranger District. 7,900 – 8,000 feet	No - not expected to occur in La Plata or San Juan Counties.
Dicots		
Aliciella sedifolia stonecrop gilia	Alpine; dry, rocky gravelly talus of tuffacous sandstone. ~12,000+ feet	No - PA is too low
Astragalus iodopetalus violet milkvetch	dry stony hillsides, commonly on granite, often about oak thickets, in the piñon-juniper and ponderosa pine zones, in oak-piñon forests, or among sagebrush; 6,500 - 7,300 feet.	Yes
Astragalus missouriensis var. humistratus Missouri milkvetch	Flat, shale meadows and on shallow slopes, including roadsides and other disturbed areas. Shale soils. 6,900 – 8,350 feet.	No - PA does not contain Mancos shale
Astragalus proximus Aztec milkvetch	Mesas, bluffs, and low hills in sandy, often alkaline, clay soil in sagebrush and piñon juniper. Mancos shale <6500 feet	No - PA is too high and does not contain Mancos shale
Draba smithii Smith whitlow-grass	Talus slopes, in crevices and between rocks in shaded protected sites; 8,000-11,000 feet	Yes
Drosera anglica English or roundleaf sundew	On floating and non-floating mats of peat in fens and sedge fens at 7,900 - 8,500 feet	Yes
Gutierrezia elegans Lone Mesa snakeweed	Piñon-juniper, semi-desert shrubland, sagebrush, barren Mancos shale outcrops in Dolores County 7,500-7,800 feet.	No - considered a narrow endemic to Dolores County.
Lesquerella pruinosa Pagosa or frosty bladderpod	Mancos shale; ponderosa pine, Gambel oak; 6,800 – 8,000 feet	No - PA does not contain Mancos shale
Machaeranthera coloradoensis Colorado tansy aster	Gravelly soils; subalpine tundra; limestone, dolomite, shale or other calcareous substrates. 9,000 - 11,000 ft	Yes
Packera mancosana Mancos Shale packera	Mancos Shale barrens in Dolores County. 7,500 feet.	No - considered a narrow endemic to Dolores County.
Parnassia kotzebuei Kotzebue's grass-of-Parnassus	Moist seeps, grassy, wet tundra on thin clay soil, and moist ledges below steep talus slopes; 10,000 – 12,000 ft.	Yes
Physaria pulvinata cushion bladderpod	Piñon-juniper, semi-desert shrubland, sagebrush (barren shale outcrops)	Yes
Physaria scrotiformis West Silver bladderpod	Alpine (barren exposure of Leadville limestone). 11,500-12,000 feet.	Yes
Salix arizonica Arizona willow	Subalpine wet meadows and streamsides; 10,000 – 11,500 ft.	Yes
Salix candida silver or sageleaf willow	On floating mats and in bogs, fens and willow thickets around ponds on wet to saturated, histic soils; 8,800 – 10,600 ft.	Yes
Utricularia minor lesser bladderwort	Fens, bogs, edges of ponds, and slow-moving streams at high elevations near 11,000 feet	Yes

Environmental Consequences
Plan-Level Impacts

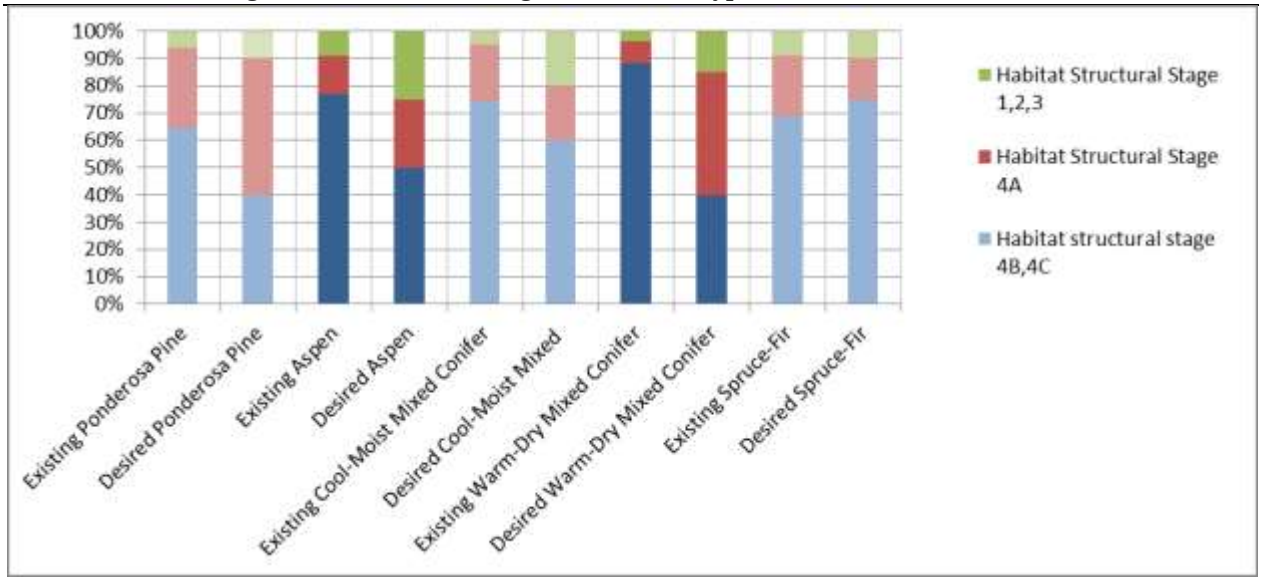
Cover Type and Forest Health

All alternatives within the wilderness will result in similar environmental consequences to the vegetation. The forest composition within the Hermosa Creek Wilderness is driven by natural processes such as drought, floods, insect and disease epidemics, natural wildfire, avalanches and blowdown. These disturbances affect species composition and age class distribution. The changing climate is causing unprecedented temperature and moisture variability which is causing

the vegetation to respond. Vegetation composition and distribution within the wilderness is expected to be dynamic as it responds to natural disturbances.

Figure 5-5 displays the existing condition and the Alternatives 2 and 3 desired condition for the different forest cover types in the SMA by canopy closure and age class (structural stage). This figure shows that the landscape is lacking in young stands of aspen, cool-moist mixed conifer, and ponderosa pine; and that within the warm-dry mature mixed conifer stands, there has more closed canopied stands than is desired.

FIGURE 5-5. Existing and Desired Forest Vegetation Cover Types in the SMA.



Alternatives 2 and 3 focus on restoration and forest health. Under these two alternatives, more active management would likely take place because of objectives in those alternatives that would encourage vegetation management to meet desired conditions. Active management would occur mostly within roaded areas to improve forest health and increase forest resiliency in the SMA. Management actions could include reforestation of old spruce-fir clearcuts and prescribed burning in cool-moist mixed conifer to reduce fuel loading, to reduce the probability of large high-intensity stand replacement fires, and to encourage aspen regeneration. Prescribed burning could also be conducted in warm-dry mixed conifer and ponderosa pine forests to reduce fuel loading and to promote ponderosa pine regeneration. These alternatives would also allow for some forest thinning in ponderosa pine and warm-dry mixed conifer forests to restore stand structure or to promote a more resilient landscape

Under Alternative 4, less emphasis would be placed on active management for forest resiliency. Some management activities such as prescribed fire or reforestation could occur, but there are no specific objectives or desired conditions of forest structure to guide management in this alternative. In general, under Alternative 4, vegetation in the SMA would resemble the vegetation in the wilderness, as changes would be driven by natural process. Reforestation of 150 acres of old spruce clearcuts would still likely occur under this alternative.

Most of the forest type in the SMA is in a *mixed severity* to *high severity* fire regime. It is expected that at some point, there will be a large fire complex in the Hermosa drainage. The fire

would burn in a mosaic pattern with high severity patches of high mortality of trees and low severity patches with little to no mortality of trees. The size and frequency of high severity patches has been increasing in wildfire complexes across the west (*Evans 2016*). This is due to fire suppression that has led to increased fuel loading, but also to changes in climate that are creating conditions for hotter and more severe fires. Proactive management in Alternatives 2 and 3 may reduce the size and frequency of high severity patches when the next large fire complex occurs.

Vegetation and terrain can influence where over-snow travel occurs. Steep wooded slopes have less winter use than open meadows or alpine areas. The impacts to vegetation from over-snow travel vary depending on frequency of travel, snow condition, vegetation, and underlying surface roughness. Small plants are not as affected in rocky areas as they are in tundra type conditions. (*Heath 2011*) Larger and denser forests are not as impacted by a snowmobile suitability designation as are more open forests, smaller trees and meadows. Heavily used trails and groomed trails have a bigger impact on vegetation than lightly used areas. Snowmobile use over shallow, warm, wet snow that compacts easily will affect the under lying vegetation more than snow mobile use in deep dry powder (*Greller1974*).

Compaction of snow reduces the thermal regulation properties of the snow and affects alpine plants and wetlands (*Switalski 2016*). The habitat under the snow is called the subnivean environment. The quality of the subnivean environment depends on the properties of the snow. Light, fluffy, air-filled snow has excellent insulation properties and protects plants from freezing. Some light can also filter down through the snow and some high elevation plants continue to photosynthesize for part of the winter. There is also microbial activity and nutrient decomposition occurring under the snow above freezing temperatures (*Musselman and Korfmacher 2007*). Snow compacted from over-snow travel has less insulation properties, less subnivean habitat, and soil and plants are more vulnerable to freezing under compacted snow. Snow compaction is heaviest in high use areas. Light snowmobile use and heavy skier use are similar, and light skier use has the least snow compaction (*WRC 2004*). Compacted snow also melts at a different rate than snow that is not compacted, which can affect plant growth and flowering time *(Stangl 1999*). Spring and summer flowering plants are more likely to be affected than fall flowering plants (*Whiteman 2008*). Snowmobiles can also damage young trees by snapping off the top leader of the tree above the snowline. This results in deformed trees with multiple leaders and forks and can affect the future health and quality of the tree. Snowmobiling can also physically damage shrubs willows and larger perennial plants, especially winter over snow travel occurs on shallow snow (*Greller 1974*).

High use areas with frequent use over the course of the winter will be affected the most. Public use is uncontrolled within open areas, but is likely to be dispersed across the landscape, thus lessening highly concentrated and repetitive use of the same routes. Commercial use and grooming are controlled by FS permit. Most groomed routes are on existing roadbeds and the permitted play area in Hermosa Park will be monitored to assess impacts. All of the alternatives allow over-snow vehicle use to some degree in alpine and mountain grasslands. This is because these are the areas where large unobstructed snow fields without large timber exist in the winter. Alternatives 1 and 4 allow snowmobile use in approximately the same amount of alpine and meadow habitat but in different areas. Alternative 4 allows use in more alpine and less mountain grassland habitat than Alternative 1. Alternatives 2 and 3 allow over-snow travel in all the open

meadows and alpine areas in the northern part of the SMA and in additional areas that are currently forested.

Special Status Plants

Because non-discretionary administrative changes to the Forest Plan are required for conformance with the legislation, all of the alternatives provide a greater level of protection than was provided prior to the legislation for sensitive species. The degree of protection and/or potential impacts would vary slightly between alternatives, but not at an easily measurable level. Therefore, impacts determinations are the same across all Forest Plan amendment alternatives.

Thirteen of the 17 sensitive species considered occur in habitats such as alpine tundra, rock talus, bogs, wetlands, or fens. These habitats would receive the greatest protection under the action alternatives, primarily because the Forest Plan amendment would provide guidance emphasizing increased wetland and riparian ecosystem protection. Additionally, legislative prohibition of off-road and off-trail travel by motorized and mechanized vehicles would occur under all alternatives and would provide better protection for plant species, especially important in these sensitive habitats. For these reasons, all Forest Plan alternatives were determined to have a wholly "beneficial impact" on the following species: sphagnum, Baltic sphagnum, lesser panicled sedge, Chamisso's cottongrass, slender cotton-grass, Smith whitlow-grass, English sundew, Colorado tansy aster, Kotzebue's grass-of-Parnassus, West Silver bladderpod, Arizona willow, silver willow, and lesser bladderwort.

The remaining four species occur in upland habitats at lower and middle elevations. The proposed Forest Plan amendment allows for, and includes objectives encouraging, future actions for vegetation management for the purposes of increasing forest health and resilience (in differing degrees in each action alternative), and for future actions supporting the cutthroat trout reintroduction program. Future implementation of these Plan objectives under any of the action alternatives has the potential for individual plants of these five species to be impacted. Mitigating the potential for impacts to individual plants are the considerations that proposed Plan guidance emphasizes resource protection, and that the legislation includes prohibition of off-road and off-trail vehicle travel. For these reasons, a determination was reached that all Forest Plan alternatives "may adversely impact individuals, but is not likely to result in a loss of viability in the planning area, nor cause a trend to federal listing or a loss of species viability range wide" for the following species: lesser yellow lady's slipper, stream orchid, violet milkvetch, and cushion bladderpod.

Project-Level Impacts

Cover Types and Forest Health

Because the legislation effectively removed the Hermosa watershed from the suitable timber base of the Forest, the emphasis is no longer on commercial timber production, and the need for many logging roads was removed; however, road access is still an important component for reforestation and general vegetation management. Removing many ML1 roads from the system is proposed in Alternatives 2 and 4; the mileage that would be removed varies by alternative, with Alternative 4 having the most miles removed. Alternatives 1 and 3 would retain all current system roads. Closed ML1 roads may be used in the future as a temporary roads or skid trail if they were built in a good location; however, the removal of the road from the system reduces the

chances that the road will be used. Most of the roads identified for removal are redundant and do not change the accessibility of the area. A few of the roads identified for removal do provide additional access for future vegetation management and may slightly affect the ability of small areas to be managed.

Alternatives 2 and 3 propose to add a few miles of unauthorized non-system road to the system as ML1 roads in order to meet the needs of future vegetation management. These short segments are existing roadbeds that are currently not system roads in the Harris Cabin, Elbert Creek, Relay Road, and Butler Creek areas. These roadbeds currently exist on the ground, but are not on the system. Identifying and adding these roads to the system maintains options for future vegetation restoration work, and allows maintenance to be conducted on them as needed.

Over-snow travel impacts at the project level would coincide with Forest Plan level impacts because all the suitable areas would be designated as open use areas. Currently open areas are not all used by motorized over-snow travel due to dense forest, steep terrain and technological limitations, but this decision would allow that use if vegetative cover or technology changes. If monitoring indicates that permitted use is having a significant impact, those permitted areas may be moved, but public use would still be open in those areas. Alternatives 1 and 4 would impact less acres in understory vegetation, alpine and meadows than Alternatives 2 and 3.

Special Status Plants

Alternative 1 would have "no impacts" on any sensitive species' habitat because there would be no change from existing conditions, and therefore, no new ground disturbance from site-specific recreation or travel management proposals.

Of the 17 sensitive species being considered, seven species occur in habitats where no new site-specific actions have been proposed, because these habitats are wetlands, bogs, fens, or at elevations not encompassed in new proposals. For this reason, all action alternatives for site-specific recreation and travel management proposals were determined to have "no impact" on the following species: Smith whitlow grass, English sundew, sphagnum, Baltic sphagnum, chamisso's cottongrass, violet milkvetch, and West Silver bladderpod. This is in addition to the six species that do not have habitat in the project area.

The remaining 10 sensitive species occur in habitats that could be impacted by the new project-level proposed activities. Upland habitats at lower and middle elevations are the types of habitats where most recreation activities would occur, including the addition of specific roads and trails as new system routes, and the potential for new developed recreation infrastructure construction. Some of the proposed trail additions cross riparian (but not wetland) areas and could impact individuals of those species that occur in moist habitats. A design criteria requiring future botanical surveys for specific ground-disturbing projects would be included in all action alternatives, and would provide opportunity for mitigation of site-specific impacts. The percentage of the entire watershed on which new ground-disturbing projects would occur is small, and would not impact the species' populations across the entire Forest. For these reasons, a determination was reached that all site-specific recreation alternatives "may adversely impact individuals, but is not likely to result in a loss of viability in the planning area, nor cause a trend to federal listing or a loss of species viability range wide" for the following species: lesser panicled sedge, lesser yellow lady's slipper, stream orchid, slender cotton-grass, Colorado tansy

aster, Kotzebue's grass-of-Parnassus, cushion bladderpod, Arizona willow, silver willow, and lesser bladderwort.

Cumulative Impacts

Ongoing management activities that could affect vegetation within the watershed include livestock grazing, recreational activities and maintenance of trails and campgrounds, and implementation of previously approved ski area projects such as clearing new ski runs and installation of infrastructure. Installation of an additional fish barrier is also previously approved. These activities would not change the over-all vegetative composition of the watershed.

The only reasonably foreseeable management activity currently being planned within the Hermosa landscape is reforestation of approximately 150 acres of old spruce clear cuts, which would likely be implemented upon completion of this management plan. The reforestation of the old spruce clear cuts would enhance Forest health and promote forest resiliency.

Historic actions include prescribed burning and timber harvest and are considered part of the existing condition, as described above.

The impacts of the proposal on vegetation, when added to the relatively small-scale ongoing and reasonably foreseeable human activities would not create extensive impacts to forest health or cover types.

Fisheries

Threatened and Endangered Species

In 2017, a Biological Assessment was prepared to assess the effects of the proposed project on Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), bonytail (*Gila elegans*), humpback chub (*Gila cypha*), and greenback cutthroat trout (*Oncorhynchus clarki stomias*) (*Schultz and Kampf, 2017*). No federally-listed fish species are present in the action area and no suitable habitat is present for the Colorado pikeminnow, razorback sucker, bonytail, or humpback chub. In addition, there are no water depletions associated with the proposed action that would affect these species downstream. Greenback cutthroat trout are limited in distribution on the SJNF to the Dolores Ranger District and would not be affected by the proposed action. Therefore, the determinations are "no effect" to any of the federally listed fish species for all of the Plan-level and project-level alternatives of the proposed project, those species will not be discussed further. The Biological Assessment is retained in the project file and available by request.

Sensitive Species

Affected Environment

A Biological Evaluation was prepared (*Kampf, 2017*) for FS Region 2 sensitive species, with the objectives: 1) to ensure that FS actions do not contribute to loss of viability of threatened, endangered, proposed, or sensitive plant and animal species, or contribute to a trend towards Federal listing under the Endangered Species Act, and, 2) to incorporate concerns for sensitive species throughout the planning process, identifying opportunities for enhancement and reducing any potential negative impacts. FS Region 2 sensitive species are designated by the Regional Forester of the Rocky Mountain Region.

For the SJNF, four fish species are designated as sensitive: Colorado River cutthroat trout (CRCT) (*Oncorhynchus clarkii pleuriticus*), flannelmouth sucker (*Catostomus latipinnis*), bluehead sucker (*Catostomus discobolus yarrow*) and roundtail chub (*Gila robusta*). Of these four species, only CRCT is known to occur within the project area and has the potential to be impacted by this project. The bluehead sucker, flannelmouth sucker, and roundtail chub are not located in the project area and will not be affected by the proposed action. There will be "no impact" to bluehead sucker, flannelmouth sucker, and roundtail chub from the proposed project and they are not included in any further analysis. Information on the habitat requirements, status, distribution, abundance and key habitat components of all sensitive species is on file.

Genetically pure core conservation populations of CRCT are rare in occurrence, with only 21 known populations on SJNF lands. A core conservation population is a conservation population that is greater than 99% genetically pure, phenotypically true, and representative of the historic genome of the native cutthroat trout (*Hirsch et. al. 2013*). Pure CRCT are managed with special regulations that require using specific tackle and immediate release of caught fish, subject to state fishing regulations. Native trout reintroduction projects in recent years have increased the available habitat for CRCT with the intent of supporting population viability within SJNF.

Of the 21 CRCT populations on the SJNF, three are within the boundary of the Hermosa Plan project area. The populations in the project area are Colorado River lineage CRCT and are not designated as threatened under the Endangered Species Act. Core conservation populations of

CRCT reside in Big Bend, Clear Creek and portions of the headwaters of Hermosa Creek and East Fork Hermosa Creek. The populations in Hermosa and East Fork Hermosa Creeks are considered one population for the purposes of this analysis. Increasing summer temperatures and lower base flows from accelerated snow melt could decrease optimum habitat for cold water fisheries. If summer temperatures increase with expected climate change, shading and deep pools will become more important to maintain the Hermosa drainage as habitat for this CRCT population.

CRCT located in Big Bend and Clear Creeks are within the boundaries of the Hermosa Creek Wilderness. Both stream systems have trails in their drainages, that are at some places are either in close proximity to the stream or have stream crossings. The potential impacts to fish were reduced in both these drainages from the conditions prior to the Hermosa legislation because now, only non-motorized/non-mechanized uses are approved in the wilderness. Both CRCT populations are stable with little concern for long-term population viability.

Proactive management of CRCT has occurred and is occurring in the headwaters of Hermosa and East Fork Hermosa Creeks. To date, two barriers to upstream fish migration have been constructed, isolating approximately 17 miles of stream for CRCT re-introduction. Native CRCT have been successfully re-introduced in approximately 14 miles of stream above the barriers with the anticipated stocking of the remaining three miles in the summer of 2017. A third barrier to upstream fish migration will be constructed in the summer of 2017 approximately 200 yards below the confluence of Hermosa and East Fork Hermosa Creeks. After the construction of the barrier, 23 miles of stream will be considered available habitat for CRCT. Because this action is currently being implemented, the habitat located upstream from the barrier that will be constructed in 2017 will be included in this analysis as CRCT habitat, and the determinations made in this document will be described as if CRCT are already in the stream reach.

Environmental Consequences

Plan-Level Impacts

There are slight Plan-level differences between alternatives that could influence fish populations in the wilderness in Clear and Big Bend Creeks. Under Alternative 4, there could be small improvements to stream bank conditions in the wilderness, resulting from a requirement to camp more than 50 feet from water, but the effects would be negligible. There is currently no grazing in either Big Bend or Clear Creek, so Plan-level decisions regarding grazing do not apply. Overall, Plan-level decisions for all action alternatives will have similar impacts to current management. Since CRCT populations are stable in Big Bend and Clear Creeks under current management, and project effects are expected to be similar across all Plan-level alternatives, there are "no impacts" to the CRCT in Big Bend and Clear creeks from Plan-level alternatives.

The CRCT population in Hermosa and East Fork Hermosa Creeks is located within the boundary of the SMA. The proposed Forest Plan amendment allows for, and includes objectives encouraging future actions for vegetation management for the purposes of increasing forest health and resilience (in differing degrees in each action alternative), for future actions supporting the cutthroat trout reintroduction program, and for additional guidance regarding grazing management in riparian areas, amongst others. Specific influences of the Plan-level

objectives are discussed in detail in the *Watershed, Riparian, and Water Resources* section of this EA.

Under Alternative 1, current management would continue in the project area with no consideration of the proposed Hermosa-specific Plan-level desired conditions, objectives, standards and guidelines. Alternative 1 will result in "no impact" to CRCT populations in Hermosa and East Fork Hermosa Creeks because current management would continue.

Under the Proposed Action, Alternative 2, Plan-level desired conditions, objectives, standards and guidelines would be incorporated in the management of the project area. These inclusions will serve to improve watershed conditions over time, with temporary disturbances to stream systems during specific project implementation. Projects specifically designed to improve CRCT habitat would likely be conducted under this and all action alternatives. Specific triggers that are defined to apply adaptive management to livestock grazing will further protect streambanks and riparian areas. These factors will improve conditions over Alternative 1.

Plan-level influences to stream systems under Alternative 3 would be similar to Alternative 2 with a few differences. Specific grazing triggers would not be considered which could lead to a stream health classification of "at risk" or "diminished" which could adversely affect fish populations in the watershed. A potential net increase in trail miles on the system could potentially increase sedimentation to streams.

There are slight Plan-level differences under Alternative 4 that could influence fish populations. A future net decrease in trail miles would reduce sedimentation to streams however, where new trails would be added and existing trails removed is unknown therefore the effects of trail reduction is also unknown.

To summarize, future implementation of these Plan-level objectives under any of the action alternatives has the potential for temporary or minor sediment impacts to stream systems and riparian areas while likely improving watershed conditions over time when compared to current management. Under current management, there are no concerns with populations trending towards federal listing or loss of species viability range-wide due to the ongoing active management to increase CRCT populations in the project area. For these reasons, a determination was reached that all Plan-level action alternatives "may adversely impact individuals, but is not likely to result in a loss of viability in the planning area, nor cause a trend to federal listing or a loss of species viability range wide" for CRCT populations in Hermosa and East Fork Hermosa Creeks.

Project-Level Impacts

No changes would be made for travel management, dispersed camping, Minimum Road System identification, developed recreation, or transportation facilities under Alternative 1. Alternative 1 would have "no impacts" on any CRCT populations because there would be no change from existing conditions, and therefore, no new ground disturbance from site-specific recreation or travel management proposals.

Project level changes impacting CRCT are only proposed in Big Bend Creek, Hermosa, and East Fork Hermosa Creeks, not in Clear Creek. As such, there is "no impact" from any project-level decisions in all action alternatives to the CRCT population in Clear Creek.

Since Big Bend Creek is located in the Hermosa Creek Wilderness, only one project-level decision could influence CRCT in Big Bend Creek; Alternatives 2 and 4 propose removing the Big Bend Trail from the system. While this decision could decrease use on the trail, it would also decrease maintenance on the trail. Over time, natural revegetation of the trail would occur, but it is likely that Big Bend Creek would experience minimal sedimentation due to erosion until the trail has revegetated. Erosion and sedimentation in waterbodies are known to reduce habitat diversity and productivity for potential fish and macroinvertebrates by filling pools, filling of interstitial spaces, and reducing streambed diversity. These habitat changes in these streams would likely lead to a loss of stream insect diversity, loss of benthic macroinvertebrate abundance, and loss of stream productivity, amongst other factors. Overall the anticipated effects of the proposed trail closure would be minor in magnitude and temporary in nature, but would result in the long-term improvement when compared to current conditions. Therefore, Alternatives 2 and 4 "may adversely impact individuals, but are not likely to result in a loss of viability in the planning area, nor cause a trend to federal listing or a loss of species viability range wide." Alternative 3 would have "no impact" to the Big Bend Creek population because the trail would remain on the system.

The CRCT population in Hermosa and East Fork Hermosa Creeks are subject to a variety of proposed projects stemming from the recreation and travel management proposals. The impacts related to roads and trails on stream flow, sediment production and riparian areas are described in the *Watershed, Riparian, and Water Resources* Section of this EA. With regard to fisheries and aquatic species, heavy sediment loads can reduce pool depths, bury stream substrates and spawning gravels, adhere to aquatic insects and the gills of fish, increase habitat for tubifex worms (an intermediate host for whirling disease), alter channel form and function, and result in other forms of habitat degradation. Improperly placed, shaped, and sized culverts can act as fish barriers on key streams or exacerbate erosion and, in turn, result in head-cutting.

For any given watershed, the overall risks of impacts to aquatic ecosystems due to roads and trails tend to increase with new construction or reconstruction. Conversely, risks of impacts to aquatic and riparian ecosystems tend to decrease with road and trail obliterations. Road and trail maintenance may result in short-term increases in soil erosion; however, routine maintenance provides opportunities to stabilize road and trail features and improve drainage. The location of roads and trails is also an important consideration when minimizing erosion and sedimentation of streams. Roads and trails adjacent to streams can directly increase sedimentation.

Under Alternative 2, driving off-road for dispersed camping would be reduced adjacent to the stream by designating camp spurs, limiting sediment exposure to streams. Removing the "300 foot rule" along Road 578 would prevent off-road vehicle use, and developing a new campground would concentrate use in an area with appropriate drainage and sediment control within the CRCT re-introduction area, both reducing sedimentation to the streams. This alternative would authorize a vehicle bridge over East Fork Hermosa on Road 577, which would cause temporary impacts to the stream system, but an overall decrease in sedimentation over time. A bridge or other span would also be authorized on the stream crossing on Road 578, greatly reducing sediment inputs to the stream and habitat degradation. Also in this alternative, the Cutthroat and West Cross Trails would be added to the system. The Cutthroat Trail specifically, runs adjacent to the East Fork Hermosa and could be a source of sedimentation to the stream, which is expected to be minimal with appropriate trail maintenance.

Project-level differences under Alternative 3 include the authorization of the Pasture Creek Trail for all types of motorized use. While there are no fish populations located in the immediate vicinity of this proposed trail, the addition of this motorized trail to the system could increase sedimentation in East Fork Hermosa via Pasture Creek, a tributary stream. This alternative would also allow driving 300 feet off-road for dispersed camping along Hermosa Creek, including a low water camp spur crossing to reach one campsite high in the watershed. Additionally, this alternative would allow e-bike use on the Cutthroat Trail, which could slightly increase trail use and therefore, slightly increase sedimentation. Due to the increased sedimentation to stream networks from these activities, Alternative 3 presents more potential impacts to fish species than Alternative 2, but overall will result in healthier stream conditions than Alternative 1.

A main differences under Alternative 4 are the reduction of maintenance level for Road 578 between the junction of Road 577 and the low water crossing on Hermosa Creek, not improving the low water crossing of Hermosa Creek, and not adding motorized use to the Pasture Creek Trail. Road 578 is located in close proximity to Hermosa Creek along this stretch and a decrease in maintenance level could introduce additional sedimentation to the stream when compared to Alternatives 2 and 3. Motorized traffic using the low water crossing of Hermosa Creek is one of the largest isolated sediment introducing factors to Hermosa Creek. Conversely, not adding the Cutthroat or the Pasture Creek Trails to the trail system would reduce sedimentation to East Fork Hermosa Creek. For these reasons, Alternative 4 represents similar sediment inputs to stream systems and potential impacts to fish species when compared to Alternative 3, but likely more impacts to fish when compared to Alternative 2.

While there are differences in regards to impacts on stream sedimentation and riparian areas for each alternative, as stated in the Watershed Section of this EA, currently the waters within the analysis area meet water quality standards for sediment. Currently, CRCT are stable or increasing, primarily through active CRCT management, in Hermosa and East Fork Hermosa Creeks, and this trend is likely to continue under all of the action alternatives. Therefore, all action alternatives "may adversely impact individuals, but is not likely to result in a loss of viability in the planning area, nor cause a trend to federal listing or a loss of species viability range wide" for CRCT populations in Hermosa and East Fork Hermosa Creeks.

Management Indicator Species

Affected Environment

The Forest Plan identifies species that are to be used to assess long-term population trends and evaluate continued population viability. These species are designated as Management Indicator Species (MIS). The aquatic MIS known to occur within the project area are the brook trout, brown trout, rainbow trout, and cutthroat trout, which will be analyzed collectively. For the purposes of this analysis, it is assumed that MIS fish species inhabit the entire length of perennial streams in which fish occur. Comprehensive fish population records within the analysis area are not maintained by the SJNF.

Fish population surveys have been conducted within the project area by the Colorado Parks and Wildlife (CPW) and the FS in the past. The results of these surveys are available by request to the Columbine Ranger District.

Environmental Consequences

The Forest Plan identifies water quantity as the primary mechanism of negative influence for MIS fish habitat, followed by water quality degradation including sedimentation and temperature increase. MIS fish species are widely distributed and abundant on the SJNF, and population numbers are primarily influenced by artificial stocking and state fishing regulations.

Impacts to MIS habitat from the proposed project (both Plan and project-level decisions) would include minor sedimentation of both a temporary and long-term nature and influences to riparian areas from roads, trails and minor changes to grazing management. Overall, effects from the proposed project to MIS habitat at the Forest-wide scale are expected to be similar to current condition, or beneficial over the long term, by minimizing overall negative effects to riparian resources in the project area.

Implementation of the proposed project (both Plan and project-level decisions) for all alternatives including the no action alternative may temporarily displace or alter how individuals use affected habitats through habitat alteration and/or disturbance, but these effects will not result in a change in the population numbers or habitat trends at the Forest-wide scale.

Cumulative Impacts

Anthropogenic factors such as fish stocking, active CRCT management, water development, high recreational use, mining activities, timber harvest, grazing, Purgatory Ski Area operations, road and trail construction, and outfitter and guide use likely have changed the fish population dynamics in the past within the analysis area.

The primary influence to CRCT populations is the introduction of non-native fish species. Past fish stocking in the analysis area has reduced the size, connectivity, and in most cases, the genetic purity and presence of CRCT populations (*Young 2008*). Non-native fish introductions represent the primary driver for the reduction of CRCT population size and genetic integrity in the analysis area. Large scale efforts have been underway to re-establish CRCT in some stream reaches in the analysis area such as the Hermosa Creek CRCT Re-introduction Project. It is unlikely that CRCT populations will naturally expand within the analysis area without the implementation of projects specifically designed to increase CRCT populations or numbers of individuals.

High recreational use occurs and may increase in the future within the analysis area. Fishing regulations designed to protect core conservation populations of CRCT and other MIS fish species should serve to protect these populations regardless of increased recreational use over time. Increased fishing pressure and the resulting increased sedimentation in the stream and reduction of streamside vegetation may influence fish populations in the future. These impacts are expected to be minimal.

Other anthropogenic influences will likely be minimal on MIS fish populations in the future due to the implementation of Forest Plan desired conditions, objectives, standards and guidelines. Additionally, impacts would likely be minimized since the designation of the Hermosa Creek Wilderness and the Colorado Roadless Rule.

Wildlife

Threatened and Endangered Species

Affected Environment

Species that are listed as threatened or endangered under the Endangered Species Act (*P.L. 93-577*) or are proposed for such listing are of particular concern to the San Juan National Forest (SJNF) because of their status and their need for special management attention. Species listed as threatened, endangered or proposed fall under the purview of Section 7 of the Act, which outlines the procedures for Federal interagency cooperation designed to conserve federally listed species and designated critical habitats.

A Biological Assessment is required for federal projects under Section 7 of the Act, and is the means to review, analyze, and document the direct, indirect and cumulative effects to species that are listed as endangered, threatened or proposed for federal listing, and proposed or designated critical habitats as described by the U.S. Fish and Wildlife Service (USFWS). The Biological Assessment for this project can be found in the project record and contains more details about this analysis and references used (*Schultz & Kampf 2017*).

A list of federally listed threatened and endangered species that may occur in the project area, and/or may be affected by the proposed action was received through the USFWS website (*USFWS 2017*). There are seven threatened, endangered or proposed, and one candidate terrestrial wildlife species that have the potential to occur or be affected by projects on the Columbine Ranger District of the SJNF. Species that do not have habitat in the Hermosa project area and do not have potential to be affected by the proposed activities and project alternatives were are dropped from further evaluation and the effects determination for these species is "no effect." Two species were carried forward for further analysis. Refer to Table 5-5.

TABLE 5-5. Federally Listed and Proposed Terrestrial Wildlife Species for the SJNF.

Species	Status	Habitat Present In Project Area?	Probability of Occurrence in the Landscape	Carried Forward for Further Analysis?	Plan-Level Effect Determination for Action Alt.s	Project-Level Effect Determination for Action Alt.s
Canada lynx	Threatened	Yes	High – based on tracks and observations.	Yes, see discussion.	No effect	NLAA**
Gunnison sage grouse	Endangered	No – no suitable lek or brood reading habitat.	Low - not documented to occur on Columbine RD	No, dismissed from further evaluation.	No effect	No effect
Mexican spotted owl	Threatened	Yes	Low – not documented to occur on Columbine RD	No, dismissed from further evaluation.	No effect	No effect

Species	Status	Habitat Present In Project Area?	Probability of Occurrence in the Landscape	Carried Forward for Further Analysis?	Plan-Level Effect Determination for Action Alt.s	Project-Level Effect Determination for Action Alt.s
New Mexico meadow jumping mouse	Endangered	No – no meadows below 8,200' with saturated soils that support tall dense herbaceous vegetation, and absence of livestock grazing.	Low – not documented to occur on Columbine RD	No, dismissed from further evaluation.	No effect	No effect
North American wolverine	Proposed Threatened	Yes	Low - Not documented to occur on SJNF in many decades.	No, dismissed from further evaluation.	Not Likely to Jeopardize the Continued Existence	Not Likely to Jeopardize the Continued Existence
Southwestern willow flycatcher	Endangered	Yes	Low – not documented to occur on Columbine RD	Yes, see discussion.	No effect	NLAA**
Uncompahgre fritillary butterfly	Endangered	No – no alpine habitat above 12,000' with a snow willow component, especially on north, northeast and east aspects.	Low – only one known occurrence on Columbine RD distant from the project area	No, dismissed from further evaluation.	No effect	No effect
Western yellow-billed cuckoo	Threatened	No – no gallery cottonwood forest with a dense understory.	Low – not documented to occur on Columbine RD	No, dismissed from further evaluation.	No effect	No effect

** "May effect, not likely to adversely affect"

The Canada lynx and the southwestern willow flycatcher are the only federally listed or proposed terrestrial wildlife species with habitat in the project area and potentially affected by the proposed project activities. Neither of these species has critical habitat designated or proposed critical habitat on the SJNF. See the vegetation section of the EA for information on the amount, condition and distribution of habitats within the Hermosa project area. Information on the habitat requirements, status, distribution, abundance, threats, and key habitat components of the two

species carried forward for further analysis is included in the Biological Assessment contained in the project record and will not be reviewed in this section.

As reviewed by the Biological Assessment for the Forest Plan, Canada lynx have been documented to occur across most of the higher elevation spruce-fir forests of the SJNF. Canada lynx populations on the SJNF are believed to have increased substantially, due in large measure to a multi-year reintroduction program conducted by Colorado Parks and Wildlife (CPW). Activities that could cause impacts to Canada lynx and lynx habitats are evaluated based on the 2008 Southern Rockies Lynx Amendment (*USFWS 2008*), an amendment to the Forest Plan. Based on tracks, photographs and radio collar data, Canada lynx are known to occur in the Hermosa project area. The Hermosa project area intersects four Lynx Analysis Units (Engineer, Hermosa, Junction Creek and Missionary-Florida), one mapped lynx linkage area (North La Plata Mountains), and contains 87,055 acres of lynx habitat, which is about 73% of the Hermosa project area; this represents about 11% of all suitable lynx habitat Forest-wide. Within the Hermosa project area, 3% of the lynx habitat is currently in an unsuitable condition. About 32% of the suitable lynx habitat in the Hermosa project area is within the Hermosa Creek Wilderness, and about 57% is in the SMA. A total of 33% of suitable lynx habitat in the Hermosa project area is within 1/3 mile of a trail designated as open for over-ground motorized or mechanized use, and about 21% is within 1/3 mile of an area designated as open to over-snow motorized travel. The Canada lynx is also listed as threatened by the State of Colorado.

Southwestern willow flycatchers are not known to occur in or near the Hermosa project area. The Hermosa project area contains about 40 acres of suitable habitat for southwestern willow flycatcher, of which 37 acres occurs in two habitat complexes along the East Fork Hermosa Creek. Conservation actions for the southwestern willow flycatcher are guided by the most recent USFWS recovery plan.

Environmental Consequences

Plan-Level Impacts

The Forest Plan Biological Assessment (*SJNF 2013, Appendix J*) arrived at a determination of "likely to adversely affect" for Canada lynx and "not likely to adversely affect" for southwestern willow flycatcher. None of the proposed Forest Plan changes to resource direction, area direction or allowable uses for the Hermosa Creek Watershed, would be expected to add to effects to listed species to a degree or in a manner that would alter the determinations of effect described in the Forest Plan Biological Assessment for any listed species.

With the application of Forest Plan standards and guidelines, and applicable management direction contained in other referenced guidance such as USFWS recovery plans and the Southern Rockies Lynx Amendment, project design criteria are expected to be effective in reducing impacts from Plan implementation activities. Conservation measures for listed species are expected to be applied regardless of the alternative that is selected.

Adverse impacts to habitats for listed species from Plan implementation activities are expected to be generally minor and localized and are not expected to result in measureable changes to species abundance or distribution across the Hermosa project area.

Within designated wilderness portions of the Hermosa project area, all alternatives for proposed changes to Plan direction are expected to result in similar environmental consequences to habitat conditions for listed species. Within the Hermosa Creek Wilderness, vegetation conditions and key habitat components for listed species will continue to be driven primarily by natural processes such as drought, floods, insect and disease epidemics, natural fire, avalanches and blowdown. These disturbance processes are unlikely to be altered by selecting one alternative versus another. For these reasons, for wilderness portions of the watershed there would be no effect to listed species.

Within more roaded portions of the Hermosa project area, timber harvest and reforestation activities will continue under all alternatives. Under Alternative 4, habitat conditions for listed species are expected to be more strongly influenced by natural processes than by active management. Under Alternatives 2 and 3, habitat conditions for listed species are expected to have comparatively more influence from active management activities designed to promote restoration and forest health than under Alternative 4. These activities may have short-term negative effects on habitat conditions for listed species within specific project areas but promoting forest restoration and forest health may also have long-term beneficial effects for listed species by enhancing conditions with which listed species are most closely associated. It is expected that more active management is likely to take place within roaded portions of the SMA as compared to those portions of the SMA that are not currently roaded.

The scale and intensity of timber harvest activities that would be allowed under any alternative is within the scope of activities previously consulted on in the Forest Plan revision process. The Hermosa forest plan amendment process tiers to the Forest Plan BA, and Plan amendment items proposed under the Hermosa decision would not allow for negative effects to habitats for listed species that were not already considered in the Biological Assessment for the Forest Plan.

Terrain and vegetation influence where over snow travel occurs and the frequency it occurs. Impacts to wildlife from over snow travel vary depending on frequency of travel, type of travel (motorized versus non-motorized) snow condition, the density of forest cover and other vegetation extending above the snow surface, and steepness of the terrain.

Direct effects of over snow motorized and non-motorized travel on wildlife include snow compaction potentially affecting subnivean characteristics, disturbance from machine noise, disturbance caused by the presence of humans and their pets in key wildlife habitat areas, and damage to vegetation needed by wildlife for food and cover. There is ongoing debate about the intensity of winter recreation effects on wildlife habitats and populations (for example see Switalski 2015 and see American Council of Snowmobile Association 2014) and more research is needed.

For over snow travel, area suitability presented in Alternative 2 better reflects actual motorized use patterns within the Hermosa project area than does suitability presented in Alternative 1. Areas designated as suitable for over snow travel under Alternative 1 poorly represent actual use areas or terrain features conducive to over snow travel. For that reason, Alternative 2 represents a correction that better reflects where over snow motorized use is actually occurring and how motorized users interact with the terrain given current over snow travel technology. Therefore selecting Alternative 2 would result in little change compared to selecting Alternative 1 in actual over snow travel use areas on the ground in the Hermosa project area.

It is recognized however, that within the extent of areas designated as suitable for over snow travel, not all areas actually receive use due to steep terrain and dense timber. But as over snow technology and rider skill levels have increased over time formerly secure wildlife habitat patches within suitable over snow travel areas have become used more often. The number of over snow riders in the Hermosa project area has increased incrementally over time, and the technology of over snow vehicles and the skill levels of riders has also increased incrementally. The combined effect is, on average, a continuing incremental increase in snow compacting activities and disturbance levels in formerly more secure wildlife habitat areas within the spatial extent that is designated as suitable for over snow travel. However, these combined effects are, at present, not thought to be limiting how species associated with deep snow environments use or move through the Hermosa project area.

The additional Forest Plan direction proposed for the Hermosa watershed is expected to maintain ecosystem function within the Hermosa project area, and measures to conserve listed species described in the Forest Plan will continue to be applied regardless of the alternative selected.

For all the reasons described above, the scale and intensity of potential effects to listed species from changes to Plan-level direction for the Hermosa project area is not expected to differ from those described in the Biological Assessment for the Forest Plan. Therefore, the proposed Forest Plan amendment would have "no effect" to listed species, relative to those described in the 2013 Forest Plan revision and no additional consultation with USFWS is needed for changes to Plan-level management direction.

Project-Level Impacts

The proposed bridge over the East Fork Hermosa Creek and redevelopment of the Upper Hermosa Trailhead and new fee campground, as well as the proposed bridge over the main stem Hermosa Creek would require site-specific analyses for potential effects to listed species when final design packages are developed. Additionally, the OHV bypass route would require a site-specific analysis for potential effects to listed species when a final design package is developed.

Canada Lynx

Under Alternatives 2 and 4, there would be approximately 7.9 acres of lynx habitat permanently lost to newly-designated mechanized and motorized trails and construction of the OHV staging area and parking area at the end of Elbert Creek Road 581. Under Alternative 3, an additional approximately 4.1 acres of lynx habitat would be permanently lost to additionally designated motorized and mechanized trails and the proposed OHV bypass route from the ski area base to the staging area. This permanent loss of lynx habitat to newly designated trails and infrastructure construction is across the entire Hermosa project area that contains approximately 84,965 acres of lynx habitat.

In addition, under Alternatives 2 and 3, three trails in the Hermosa Creek Wilderness are proposed to be removed from the system. This would result in 6.5 acres expected to eventually revert back to lynx habitat. This results in about 1.4 acres of net habitat loss under Alternative 2, the proposed action. For this reason, the primary potential effect to listed species would not be from direct loss of habitat but rather would be from human disturbance associated with the use of trails and areas newly designated as open to motorized use.

Seasonal limitations on over-ground motorized and mechanized uses under all project alternatives is expected to benefit listed species, primarily Canada lynx, that may be present by reducing the potential for human disturbance within preferred habitats during the restriction periods.

Eliminating the "300 foot rule" under all project alternatives is expected to benefit listed species, primarily Canada lynx that may be present during snow-free seasons by reducing the potential for human disturbance within preferred habitats near roads.

Over-snow motorized use has potential to affect listed species differently from over-ground travel because motorized use is limited to designated routes in summer, but cross-country travel is allowed in winter (within designated areas). For this reason, over-snow motorized travel has greater potential for disturbance to listed species, particularly Canada lynx, that might be in the area.

Groomed over-snow routes and compacted play areas have the potential to allow competing carnivores to gain better access to higher elevation deep snow areas where Canada lynx are best adapted, potentially increasing competition for snowshoe hare and other primary prey. Expanded over-snow play areas proposed under all three of the action alternatives is expected to potentially reduce habitat quality for listed species.

The alternatives propose few activities that are likely to result in physical changes to lynx habitat conditions or loss of lynx habitat within individual lynx analysis units in the Hermosa project area. Total net loss of lynx habitat from all proposed actions combined is approximately 1.4 acres within lynx analysis units, or about 0.006% of lynx habitat within lynx analysis units in the Hermosa project area (84,965 acres), and therefore is insignificant and discountable.

For over-ground travel, the amount of lynx habitat potentially affected by motorized use increases from Alternative 1, to Alternatives 4, 2 and 3, in that order respectively, from least to most lynx habitat potentially affected. Under Alternative 2, the proposed action, 24% of suitable lynx habitat in the Hermosa project area would be potentially affected by over-ground motorized use, compared to 21% potentially affected under the current condition, Alternative 1. By comparison, under Alternative 3, 26% of lynx habitat would be potentially affected by over-ground travel, and under Alternative 4, 23% of lynx habitat would be potentially affected by over-ground travel. Alternative 3 proposes to open three new routes to motorized use that are not open to motorized use under Alternative 2, and not open under current condition. These routes are the Upper Dutch/Pinkerton Trail, the Pasture Creek >50" OHV trail loop, and the western portion of the Cutthroat Trail open to class 1 e-bikes. All of these new routes would pass through or immediately adjacent to lynx habitat, increasing potential for disturbance to animals that might be present.

For over-snow travel, the amount of lynx habitat potentially affected by motorized use increases from Alternative 1 to Alternatives 4, 2 and 3, in that order respectively, from least to most lynx habitat potentially affected. Under Alternative 2, the proposed action, 38% of suitable lynx habitat in the Hermosa project area would be potentially affected by over-snow motorized use, compared to 21% potentially affected under the current condition, Alternative 1. By comparison, under Alternative 3, 38% of lynx habitat would be potentially affected by over-snow travel, and under Alternative 4, 24% of lynx habitat would be potentially affected by over-snow travel.

For Canada lynx, the overall ranking of order of preference of project-level alternatives is Alternative 1, followed by Alternatives 4, 2 and 3, respectively. This ranking is based on the proposed activities and potential infrastructure developments described in the EA, the extensive amount of lynx habitat potentially affected by over-snow motorized travel, up to about 1/3 of all lynx habitat in the Hermosa project area, and by the net increase (albeit relatively small, about 1.4 acres) in the amount of lynx habitat permanently lost to new trail designations and infrastructure construction.

Although over-snow travel has greater potential than over-ground travel to affect lynx, recent studies of radio-collared lynx in the nearby Molas Pass area have detected lynx use in landscapes with moderate to high levels of winter motorized and non-motorized recreation. Detection of snow tracks and animal sightings in the Purgatory Ski Area confirm lynx use some portions of the Hermosa project area during winter in areas where high human recreation is also present. It is unknown if lynx move through these high human recreation areas at night when most human activity is absent, or if the daytime sightings of animals represent regular activity patterns of animals moving through the area.

Because the project alternatives are likely to result in only a very small amount of lynx habitat modification compared to the large amount of lynx habitat available in the Hermosa project area, and the degree of increase in potential for human disturbance to individual animals in lynx habitat from project-related activities is determined to be insignificant and discountable, implementing the proposed action of the Hermosa project may affect but is not likely to adversely affect Canada lynx and lynx habitat.

Southwestern Willow Flycatcher

Both flycatcher habitat complexes along the Cutthroat Trail are at relatively high elevation, about 8,900 feet, and are not known to be occupied by flycatchers. Surveys were conducted in both habitat complexes in 2008 and 2009 according to USFWS protocol, and no flycatchers were detected.

The western portion of the proposed Cutthroat Trail is within 1/3 mile and adjacent to both habitat complexes for the southwestern willow flycatcher. For this reason, project effects relate directly to the status and allowable use designations of this trail. Both flycatcher habitat complexes are in an area also designated as open to over snow travel under all action alternatives, and currently open to over snow travel. Therefore potential for physical damage to willows from motorized travel over snow would not vary by alternative, including current condition.

The Cutthroat Trail currently exists on the ground and no new trail construction or reroutes are proposed at this time. For this reason, adding the trail to the system would not result in actual loss of flycatcher habitat. The primary impact from project alternatives to flycatchers would be from the potential for disturbance associated with use of the trail. The trail currently receives low to moderate levels of use by mountain bikes and foot and horse travel.

For the western portion of the Cutthroat Trail that is within 1.3 mile of the flycatcher habitat complexes, under Alternatives 1 and 4, the trail would not be a designated system trail and thus would be closed to all mechanized use. Under Alternative 2, the proposed action, the trail would be open to mechanized use only. Under Alternative 3, the trail would be open to mechanized use,

and class 1 e-bikes would be the only motorized use allowed. The trail is about 120 feet away from one habitat patch at its closest point, and up to 450 feet away at its furthest perpendicular point. For another habitat patch, the trail is about 25 feet away at its closest point, and about 460 feet away at its furthest perpendicular point. Because the trail does not pass through the habitat patches and is relatively distant from at its furthest perpendicular points, the potential for disturbance from bikes using the newly designated trail would be insignificant and discountable.

Based on the proposed allowable use designations for the Cutthroat Trail under each alternative, the overall ranking of order of preference of project alternatives for southwestern willow flycatcher is Alternative 1, followed by Alternatives 4, 2 and 3 respectively, from least to most potential for human disturbance to the two flycatcher habitat complexes.

The two flycatcher habitat complexes along East Fork Hermosa Creek are also in close proximity to the Hermosa Park Road 578 which receives heavy traffic volume by full size vehicles and OHVs of all types. At their closest points, the flycatcher habitat patches are about 180 feet and 440 feet from the road. One complex is also in close proximity (approximately 600 feet) to the Upper Hermosa Trailhead and the large dispersed camping complex which receives heavy day and overnight recreational use. The section of East Fork Hermosa Creek between the two flycatcher habitat complexes receives moderate recreational use from fishermen and people walking from the nearby dispersed camping area. Due to relatively close proximity, these flycatcher habitat complexes are in areas of moderate to relatively high human use and activity levels, especially between July 4 and Labor Day. For this reason, allowing mechanized use on the nearby Cutthroat Trail under Alternative 2 would likely not substantively increase the current background level of moderate to higher human disturbance that already exists for these two habitat complexes. The additional human disturbance associated with designation of the Cutthroat Trail as a system trail open to mechanized use is likely to be insignificant and discountable, compared to current use, if flycatchers were present in the habitat complexes.

Under Alternatives 2 and 3, the trailhead at the upper end of the Hermosa Creek Trail is proposed to be rebuilt in its current location. Additionally, a new developed fee campground and a road bridge is proposed to be built. After this occurs, the dispersed camping that currently occurs north of the creek would be eliminated. Alternative 1 would leave the existing dispersed camping area north of the creek, no developed campground would be built, and the trailhead would remain south of the creek in its current location. Alternative 4 proposes to move the trailhead and build the new fee campground on the north side of the creek. A trail bridge would be installed to provide foot, bike, and <50” wide OHV access across the stream to reach the Hermosa Trail. After this occurs, the dispersed camping that currently occurs north of the creek would be eliminated. The current dispersed camping area on the north side of the creek is in proximity (about 600 feet) to the nearest of the flycatcher habitat complexes. Creation of new recreation facilities or adjustment of existing facilities would have potential for short-term negative affects to flycatcher habitat, and potentially long-term beneficial affects to flycatcher habitat, depending on the selected alternative and final design. Redesign of the trailhead and campground facilities and current low water crossing and dispersed camping area would require site-specific analyses and consultation for potential effects to listed species when final design packages are developed.

Finally, all action alternatives include the provision that seasonal closures would apply to all over-ground motorized and mechanized uses, including bicycles. Generally, allowable seasons of use would be from May 1 through November 14 or as late as December 31, depending on the route. Currently, some roads and some trails are open to motorized uses year round, and there are no seasonal restrictions on mechanized uses. The dates the Cutthroat Trail would be open to mechanized and/or motorized (class 1 e-bike) use would encompass the entire range of time flycatchers could likely be present. For this reason, seasonal restrictions would not benefit flycatchers because trail use would be allowed throughout the duration of time flycatchers could potentially be present.

Because the project alternatives are not likely to result in new modification of flycatcher habitat, and under the proposed action the increase in potential for human disturbance from new project-related activities to individual flycatchers, if they were present, is determined to be insignificant and discountable, implementing the proposed action of the Hermosa project may affect but is not likely to adversely affect southwestern willow flycatcher and flycatcher habitat.

Sensitive Species
Affected Environment

Forest Service Manual (FSM) 2670 requires a review of all FS planned, funded, executed or permitted programs and activities for possible effects to FS designated sensitive wildlife species. The process used to evaluate the effects agency activities and programs may have on designated sensitive species is in accordance with the standards established in 50 CFR 402.12, and Forest Service Manual Direction (FSM 2672.4). U.S. FS Region 2 sensitive species are designated by the Regional Forester of the Rocky Mountain Region (*USDA 2016a*). A Biological Evaluation was conducted to analyze the impacts of alternatives to designated sensitive species following agency direction and can be found in the project record (*Schultz 2017a*), or is available upon request.

Table 5-6 lists the 34 species designated as sensitive that are known to occur, may occur, or have habitat on FS lands managed by the SJNF. The table also provides a summary of how the alternatives might affect each species and their key habitat components, and impact determinations for each species. Specific project-level impacts are discussed below in more detail for those species with habitat present in the Hermosa project area and that are likely to be affected (positively or negatively) by the action alternatives. Details of the analysis leading to the summary can be found in the project record. Information on the habitat requirements, status, distribution, abundance and key habitat components of FS designated sensitive species is on file at the Columbine Ranger District office in Bayfield, Colorado and will not be reviewed here.

TABLE 5-6. Forest Service Region 2 Sensitive Terrestrial Wildlife for the SJNF.

Species	Habitat Present In Project Area (PA)?	Species or Habitat Impacted by Project?	Basic Habitat Description	Plan-Level Impact Determination for Action Alt.s	Project-level Impact Determination for Action Alt.s
MAMMALS					
American marten	Yes – known to occur year round in Landscape. About 53,999a of habitat in project area, of which 21% is potentially affected by over-snow travel.	Yes – potential for disturbance and affects to primary prey species from over-snow motorized travel.	Mature spruce/fir and mixed conifer forests with complex physical structure.	No Impact	May adversely impact individuals... **
Desert Bighorn Sheep	No – no desert canyons in area, not known to occur in San Juan, or La Plata County	No	Rocky canyons, grass, low shrub, open habitat with adjacent steep rocky areas for escape and safety. Does not occur on Columbine RD.	No Impact	No Impact. No further discussion is required
Fringed myotis	No – Area too high in elevation, not known to occur in project area.	No	Desert, grassland, and woodland habitats. Roosts in caves, mines, rock crevices, buildings, and other protected sites.	No Impact	No Impact. No further discussion is required
Gunnison's prairie dog	No – no suitable extensive grassland or prairie dog colonies in project area not known to occur in San Juan or La Plata County	No	High mountain valleys and plateaus at 6000-12,000'; open or slightly brushy country, scattered junipers and pines. Burrows usually on slopes or in hummocks.	No Impact	No Impact. No further discussion is required

Species	Habitat Present In Project Area (PA)?	Species or Habitat Impacted by Project?	Basic Habitat Description	Plan-Level Impact Determination for Action Alt.s	Project-level Impact Determination for Action Alt.s
Hoary Bat	No - Area too high in elevation, not known to occur in San Juan or La Plata County	No	Associated with foliage in trees, mainly ponderosa pine, piñon/juniper and riparian forest.	No Impact	No Impact. No further discussion is required
Kit Fox	No - Area too high in elevation, not known to occur in San Juan or La Plata County	No	Semidesert shrublands dominated by sagebrush, saltbush and greasewood and margins of piñon-juniper woodlands mixed with sagebrush.	No Impact	No Impact. No further discussion is required
River Otter	No – not known to occur in or near Hermosa watershed or in San Juan County.	No	Stream and river riparian	No Impact	No Impact. No further discussion is required
Rocky Mountain bighorn sheep	Yes – historic occurrences on eastern edge of Hermosa project area. No recent sightings. About 5,923a of mapped summer range in project area.	Depends on Alt - potential for disturbance from over-ground motorized travel on new travel routes.	Open or semi-open habitats, often in precipitous terrain and the adjacent benches and mesa tops, most commonly in alpine, grassland, shrub-steppe and rocky areas.	No Impact	Selecting Alternative 2 or 4 will have no impact. Selecting Alternative 3 may adversely impact individuals... **
Spotted bat	No – too high elevation, not known to occur in San Juan or La Plata County.	No	Piñon-juniper, shrub desert, possibly riparian.	No Impact	No Impact. No further discussion is required
Townsend's big-eared bat	Yes – Open mature montane forests present in project area.	No – Open mature montane forests and roost sites not modified by proposed actions.	Forages in semi-desert shrublands, piñon -juniper woodlands and open montane forests. Roosts in caves, mines and mature forests.	No Impact	No Impact. No further discussion is required
BIRDS					
American bittern	No – no marsh, swamp, or bog with cattails, rushes, grasses, and sedges, not known to occur in San Juan or Hinsdale County	No	Marsh, swamp, or bog with cattails, rushes, grasses, and sedges	No Impact	No Impact. No further discussion is required
American peregrine falcon	Yes – suitable foraging habitat, three known nest sites on eastern edge of project area.	No – nest sites not within ½ mile of new proposed motorized routes, and foraging habitat not affected by over-ground travel.	Cliffs over 200 feet high with suitable ledges for nest construction.	No Impact	No Impact. No further analysis is required.
Bald eagle	No – no nests known in project area and no suitable foraging habitat.	No	Nests and roosts are usually found in open-branched trees near larger lakes, streams, rivers and reservoirs.	No Impact	No Impact. No further analysis is required.
Black swift	No – no known nest sites in project area.	No	Nests behind or next to waterfalls and wet cliffs. Forages over forests and open areas.	No Impact	No Impact No further analysis is required.

Species	Habitat Present In Project Area (PA)?	Species or Habitat Impacted by Project?	Basic Habitat Description	Plan-Level Impact Determination for Action Alt.s	Project-level Impact Determination for Action Alt.s
Boreal owl	Yes – known to nest and occur year round in the landscape. About 27,945 acres of habitat in project area, of which 22% is potentially affected by over-snow travel.	Yes – potential for affects to primary prey species from over-snow motorized travel.	Mature spruce/fir and cool-moist mixed conifer forests with preference for wet situations (bogs or streams) for foraging	No Impact	May adversely impact individuals... **
Brewer's sparrow	No – no sagebrush in project area; not known to occur project area	No	Strongly associated with sagebrush in areas with scattered shrubs and short grass; to lesser extent in mountain mahogany, rabbit brush, and bunchgrass grasslands with shrubs or large openings in piñon - juniper.	No Impact	No Impact. No further analysis is required.
Burrowing owl	No – no suitable extensive grassland or prairie dog colonies in project area, not known to occur in San Juan, or La Plata County	No	Open grasslands associated with prairie dogs. Nests and roosts in burrows dug by mammals or other animals. Not known to occur on Columbine or Pagosa RDs.	No Impact	No Impact. No further analysis is required.
Columbian sharp-tailed grouse	No – no habitat in Landscape; not known to occur in San Juan or La Plata County	No	Oak/service berry shrublands, often interspersed with sagebrush; aspen forests; irrigated pasture. Recently reintroduced near Dolores, not known to occur on Columbine or Pagosa RDs.	No Impact	No Impact. No further analysis is required.
Ferruginous hawk	No – no suitable extensive grassland or prairie dog colonies in project area; not known to occur in project area	No	Open grasslands and shrub steppe communities. Nests in tall trees or shrubs along streams or on steep slopes. Not known to nest on or near SJNF, but is winter visitor and can occur during non-breeding season.	No Impact	No Impact. No further analysis is required.
Flammulated owl	Yes – known to nest in the project area. About 46,684a of habitat in project area, of which 29% potentially affected by over-ground travel.	No – nesting habitat and foraging habitat generally not affected by over-ground travel	Depend on cavities for nesting, open forests for foraging, brush for roosting. Occupy open ponderosa pine or forests with similar features (dry montane conifer or aspen, with dense saplings).	No Impact	No Impact. No further analysis is required.
Lewis' woodpecker	No – no suitable mature ponderosa pine or Gambel oak in Landscape, not known to occur in project area.	No	Open pine forests, burnt over areas with snags and stumps, riparian and rural cottonwoods, and piñon-juniper woodlands.	No Impact	No Impact. No further analysis is required.
Loggerhead shrike	No – no sagebrush or thorn shrub habitats in Hermosa project area	No	Grassy pastures that are well grazed. Nests in shrubs or small trees, preferably thorny such as hawthorn.	No Impact	No Impact. No further analysis is required.

Species	Habitat Present In Project Area (PA)?	Species or Habitat Impacted by Project?	Basic Habitat Description	Plan-Level Impact Determination for Action Alt.s	Project-level Impact Determination for Action Alt.s
Northern goshawk	Yes – foraging and nesting habitat and known to nest in project area. About 65,367a of habitat in project area, of which 36% potentially affected by over-ground travel.	Alternative 3 only - potential for disturbance from over-ground motorized travel on new travel routes if nests are present.	Mature forest generalist, often found in mixed conifer/aspen stands.	No Impact	Selecting Alternative 2 or 4 will have no impact. Selecting Alternative 3 may adversely impact individuals... **
Northern harrier	No - no suitable wetlands or cattail marshes in project area, not known to nest in San Juan County	No	Marshes, meadows, grasslands, and cultivated fields. Nests on the ground, commonly near low shrubs, in tall weeds or reeds, sometimes in bog; or on top of low bush above water, or on knoll of dry ground, or on higher shrubby ground near water, or on dry marsh vegetation.	No Impact	No Impact. No further analysis is required.
Olive-sided flycatcher	Yes – suitable nesting and foraging habitat and known to nest in project area. About 24,489a of habitat in project area, of which 44% potentially affected by over-ground travel.	No – nesting habitat and foraging habitat generally not affected by over-ground travel	Mature spruce/fir or Douglas-fir forests with preference for natural clearings, bogs, streams and lake shores with water-killed trees, forest burns and logged areas with standing dead trees.	No Impact	No Impact. No further analysis is required.
Purple martin	No – no suitable mature aspen stands in project area, not known to nest in San Juan or La Plata County	No	Mature pure aspen stands near streams, springs, or ponds. Not known to occur on Columbine RD.	No Impact	No Impact. No further analysis is required.
Sagebrush Sparrow	No – no suitable stands of big sagebrush in project area, not known to nest in San Juan County	No	Nests only in sizeable, low-elevation stands of big sagebrush or mixed big sagebrush and greasewood. Not known to occur on Columbine RD.	No Impact	No Impact. No further analysis is required.
Short-eared owl	No - no suitable wetlands or cattail marshes in project area, not known to nest in San Juan County	No	Open habitats including grasslands, marsh edges, shrub-steppe, and agricultural lands; requires taller grass cover than northern harrier	No Impact	No Impact. No further analysis is required.
White-tailed ptarmigan	Yes- known to occur year round in project area. About 6,557a of habitat in project area, of which 46% is potentially affected by over-snow travel.	Yes – potential for disturbance from over-snow motorized travel.	Alpine tundra, especially in rocky areas with sparse vegetation. Summer habitats include moist, low-growing alpine vegetation. Canopy cover of willow at winter feeding sites preferred.	No Impact	May adversely impact individuals... **

Species	Habitat Present In Project Area (PA)?	Species or Habitat Impacted by Project?	Basic Habitat Description	Plan-Level Impact Determination for Action Alt.s	Project-level Impact Determination for Action Alt.s
AMPHIBIANS					
Boreal toad	Yes – suitable habitat but not known to currently occur in project area. About 1,392a of potential habitat in project area, of which 25% potentially affected by over-ground travel.	No – wetlands and aquatic habitat structure not affected by over-ground travel.	Wetlands in spruce/fir forest, near water and alpine meadows.	No Impact	No Impact. No further analysis is required.
Northern leopard frog	Yes – suitable habitat but not known to currently occur in project area. About 1,392a of potential habitat in project area, of which 25% potentially affected by over-ground travel.	No – wetlands and aquatic habitat structure not affected by over-ground travel.	Riparian and wetland areas.	No Impact	No Impact. No further analysis is required.
INSECTS					
Great Basin silverspot	No – Landscape is too high in elevation, not known to occur in San Juan or La Plata County.	No	Spring fed and/or sub-irrigated wetlands at low (7500' or less) elevation; larval food plant Viola nephrophylla; wet meadows interspersed with willows and other woody wetland species; adult nectar sources.	No Impact	No Impact. No further analysis is required.
Monarch Butterfly	Yes – low potential to occur at low and mid elevations of Hermosa project area.	No – spring fed and moist areas not likely to be affected by new proposed over-ground travel routes.	Spring fed or moist areas with milkweed, primary host plants.	No Impact	No Impact. No further analysis is required.
Western Bumblebee	Yes – potential to occur throughout project area.	No – open habitats with flowering plants not likely to be affected by new proposed over-ground travel routes.	Open habitats with flowering plants for pollen nectar sources, and nesting and overwintering sites at or below ground level such as rock piles, downed logs, tree cavities and rodent burrows.	No Impact	No Impact. No further analysis is required.

** "May adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing."

Environmental Consequences

Plan-Level Impacts

The Forest Plan Biological Evaluation (*SJNF 2013, Appendix T*) arrived at a determination of "may adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing" from Plan implementation activities for all sensitive species known to occur on the SJNF. None of the proposed changes to Forest Plan resource direction, area direction or allowable uses for the Hermosa Creek Watershed would be expected to add to effects to sensitive species to a degree or in a manner that would alter the

determinations of effect provided in the Forest Plan Biological Evaluation for any sensitive species.

With the application of Forest Plan standards and guidelines, and applicable management direction contained in other referenced guidance listed in Forest Plan such as USFWS recovery plans, the Southern Rockies Lynx Amendment and CPW raptor protection guidelines, project design criteria are expected to be effective in reducing impacts from Plan implementation activities. Conservation measures for sensitive species described in the Forest Plan are expected to be applied regardless of the alternative that is selected.

Adverse impacts to habitats for sensitive species from Plan implementation activities are expected to be generally minor and localized and are not expected to result in measureable changes to species abundance or distribution across the Hermosa project area.

Within designated wilderness portions of the Hermosa project area, all alternatives for proposed changes to Plan direction are expected to result in similar environmental consequences to habitat conditions for sensitive species. Within the Hermosa Creek Wilderness, vegetation conditions and key habitat components for sensitive species will continue to be driven primarily by natural processes such as drought, floods, insect and disease epidemics, natural fire, avalanches and blowdown. These disturbance processes are unlikely to be altered by selecting one alternative versus another. For these reasons, for wilderness portions of the watershed, there would be no impact to sensitive species.

Within more roaded portions of the Hermosa project area, timber harvest and reforestation activities will continue under all alternatives. Under Alternative 4, habitat conditions for sensitive species are expected to be more strongly influenced by natural processes than by active management. Under Alternatives 2 and 3, habitat conditions for sensitive species are expected to have comparatively more influence from active management activities designed to promote restoration and forest health than under Alternative 4. These activities may have short-term negative effects on habitat conditions for sensitive species within specific project areas but promoting forest restoration and forest health may also have long-term beneficial effects for sensitive species by enhancing conditions with which sensitive species are most closely associated. It is expected that more active management is likely to take place within roaded portions of the SMA as compared to those portions of the SMA that are not currently roaded.

The scale and intensity of timber harvest activities that would be allowed under any alternative is within the scope of activities previously analyzed in the Forest Plan revision process. The Hermosa forest plan amendment process tiers to the Forest Plan BE, and Plan amendment items proposed under the Hermosa decision would not allow for negative effects to habitats for sensitive species that were not already considered in the BE for the Forest Plan.

For over snow travel suitability areas, effects to Forest Service designated sensitive species would be similar to those described above for threatened and endangered species.

The additional Forest Plan direction proposed for the Hermosa watershed is expected to maintain ecosystem function within the Hermosa project area, and measures to conserve sensitive species described in the Forest Plan will continue to be applied regardless of the alternative selected.

For all the reasons described above, the scale and intensity of potential effects to sensitive species from changes to Plan-level direction for the Hermosa project area is not expected to differ from those described in the BE for the Forest Plan. Therefore, the proposed Forest Plan amendment would have "no impact" to sensitive species, relative to those described in the 2013 Forest Plan revision and no additional analysis is needed for changes to Plan-level management direction.

Project-Level Impacts

Of the 34 sensitive species, 13 have habitat and are known to occur or may occur in the Hermosa landscape, but only five species have habitat present in the Hermosa project area and could be affected by the project-level proposals. These five species brought forward for detailed analysis are: American marten, boreal owl, northern goshawk, Rocky Mountain bighorn sheep and white-tailed ptarmigan.

The remaining 29 species either do not have habitat in the Hermosa project area, are not known to occur in the project area, do not regularly breed in or use the project area or occur only irregularly and unexpectedly and often outside of habitat associations characteristic of the species, or over-ground or over-snow travel management is unlikely to substantially affect their preferred habitats or key habitat components. For these reasons, these 29 species will not be evaluated further and the effect of selecting any of the project-level alternatives on these 29 species is "no impact."

Over snow travel impacts at the project level would coincide with Forest Plan level decisions because the areas designated as suitable for over snow travel within the Hermosa project area would be designated as open to over snow travel.

For over snow travel, selecting Alternative 2 better reflects actual motorized use patterns within the Hermosa project area than does selecting Alternative 1. Alternative 1 poorly represent actual use areas or terrain features conducive to over snow travel, compared to Alternative 2. For that reason, Alternative 2 represents a correction that better reflects where over snow motorized use is actually occurring and how motorized users interact with the terrain given current over snow travel technology. Therefore selecting Alternative 2 would result in little change compared to Alternative 1 in actual over snow travel use areas on the ground in the Hermosa project area.

Terrain and vegetation influence where over snow travel occurs and the frequency it occurs. Impacts to wildlife from over snow travel vary depending on frequency of travel, type of travel (motorized versus non-motorized) snow condition, the density of forest cover and other vegetation extending above the snow surface, and steepness of the terrain.

It is recognized however, that within the extent of areas open to over snow travel, not all patches actually receive use due to steep terrain and dense timber. But as over snow technology and rider skill levels have increased over time formerly secure habitat patches within open areas have become used more often. The number of over snow riders in the Hermosa project area has increased incrementally over time, and the technology of over snow vehicles and the skill levels of riders has also increased incrementally. The combined effect is, on average, a continuing incremental increase in snow compacting activities and disturbance levels in formerly more secure habitat areas within the spatial extent that is open to over snow travel.

Increased intensity of over-snow travel has potential to reduce habitat effectiveness in primary habitats for sensitive species that overlap with high winter recreation use areas. Negative effects to sensitive species associated with deep snow environments can occur through disturbance to individual animals. Snow compacting activities can also fragment and/or reduce the availability of deep snow areas used by animals for roosting and foraging. Snow compaction can also affect hunting success by small mammal predators and reduce the availability of small mammal prey both above and below the snow surface. Small-scale changes in vegetation conditions caused by snow compaction may result in small-scale changes in the abundance and/or distribution of small mammals both above and below the snow surface.

These combined effects are, at present however, not thought to be limiting how sensitive wildlife species associated with deep snow environments use or move through the Hermosa project area. The sensitive species associated with deep snow environments that have greatest potential to be affected by these factors are American marten, boreal owl and white-tailed ptarmigan.

American Marten

The American marten is widespread and relatively abundant in suitable habitat across the spruce-fir and cool-moist mixed conifer forests of the SJNF. The primary influential management activity in marten habitat is timber harvest and associated activities such as road construction and use. Motorized recreation, including over-snow travel, can affect use of preferred habitats (*SJNF 2004*).

Habitat is perhaps the most important factor for marten populations. Although martens use a variety of habitats, winter habitat may be the most critical feature in an individual's home range, in defining its overall success (*Buskirk 1994*). Females and juveniles may be particularly sensitive to prey availability, due to the high energy demands of reproduction and growth. Martens are known to be somewhat curious and adaptable to human presence, and will occasionally approach humans. Heavy winter recreation activity in occupied habitat has potential to create additional stress on martens, which are often operating at or near an energy deficit during winter (*Bennett 1984*). Winter motorized recreation has potential to compact the open spaces in the subnivean environment, potentially affecting both habitat conditions for primary prey and marten winter resting sites.

Recent analysis of forest-wide marten monitoring data has shown a declining trend in marten detection rates. Although causes of this decline are unknown, it is possible that increases in winter recreation during this same time frame may be a contributing factor due to increased disturbance displacing individuals from preferred habitats, and reduced habitat effectiveness in primary habitats that overlap with high winter recreation use areas. Marten continue to be detected in high-use areas, such as Purgatory Ski Area, suggesting the amount of use of a particular area may depend on the extent, intensity and duration of disturbance.

Under current condition, about 33,142 acres of marten habitat occur in the Hermosa project area in large blocks of security habitat that are greater than 250 acres in size. These habitat security areas represent relatively large tracts that are relatively isolated from motorized access routes. These areas are important because they help offset the impacts of recreational disturbance in portions of the project area with greater proximity to motorized routes, and they contribute to the maintenance of viable wildlife populations in more natural patterns of abundance and

distribution in relation to preferred habitat types and foraging/birthing areas.

Within the Hermosa project area about 61% of marten habitat falls within one of these security habitat blocks. The marten security habitat blocks are entirely within the central, southern and western portions of the Hermosa project area. The northern third of the Hermosa project has no marten security areas because it is nearly all open to over-snow travel under Alternatives 2, 3 and 4. More than half of all marten security habitat in the project area is in the Hermosa Creek Wilderness. Conversely, about 39% of all marten habitat in the Hermosa project area is within 1/3 mile of a designated over-snow travel play area where potential for disturbance to animals is greatest. This indicates that much of the over-snow play areas in the Hermosa project area overlap with marten habitat.

For American marten, the overall ranking of order of preference of project alternatives is Alternative 1, followed by Alternatives 4, 2 and 3, respectively, from least to most marten habitat potentially affected by over-snow travel. This ranking is based on the proposed activities and potential infrastructure developments described above, and the greater influence that over-snow motorized travel is likely to have on marten habitat use, compared to over-ground motorized travel. Motorized travel during winter has greater potential to affect individual animals than during summer because motorized use is not limited to predictable routes but is allowed across large cross-country areas.

All three action alternatives propose to increase the extent of marten habitat in the Hermosa project area that is potentially affected by over-snow travel: 21% under the current condition of Alternative 1, 38% under Alternatives 2 and 3, and 25% under Alternative 4. It is possible however that expanding the extent of marten habitat in the Hermosa project area open to over-snow motorized recreation, such as under all three action alternatives, could contribute to the observed forest-wide downward trend in American marten detections.

Motorized over-snow travel may temporarily displace individual marten but over-snow travel in the Hermosa project area is unlikely to reduce viability of marten across the planning area, which is the entire SJNF. Regardless of the project alternative selected, marten are likely to remain well distributed across the planning area. The wilderness portion of the Hermosa project area will continue to provide security habitat blocks and partially offset increased winter recreation intensity and expanding use areas in the northern portion of the Hermosa project area.

Selecting any project-level action alternative “may adversely impact individual American marten, but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.”

Boreal Owl

The boreal owl is widespread and relatively abundant in suitable habitat across the spruce-fir and cool-moist mixed conifer forests of the SJNF (*SJNF 2004b, Schultz 1999*). Boreal owls have been documented in several locations in the Hermosa project area. Motorized recreation, including over-snow travel, can affect use of preferred habitats. Winter motorized recreation has potential to compact the open spaces in the subnivean environment, potentially affecting habitat conditions for their primary prey the southern red-backed vole.

For boreal owl, the overall ranking of order of preference of project alternatives is Alternative 1,

followed by Alternatives 4, 2 and 3, respectively, from least to most owl habitat potentially affected by over-snow travel. This ranking is based on the proposed activities and potential infrastructure developments described above, and the greater influence that over-snow motorized travel is likely to have on boreal owl habitat, compared to over-ground motorized travel.

All three action alternatives propose to increase the extent of owl habitat in the Hermosa project area that is potentially affected by over-ground travel: 22% under the Alternative 1 current condition, 44% under Alternatives 2 and 3, and 27% under Alternative 4.

Motorized over-snow travel may reduce boreal owl habitat effectiveness through impacts associated with snow compaction and reduced availability of preferred prey in winter. However, over-snow travel in the Hermosa project area is unlikely to reduce viability of boreal owls across the planning area, which is the entire SJNF. Regardless of the project alternative selected, boreal owls are likely to remain well distributed across the planning area. The wilderness portion of the Hermosa project area will continue to provide extensive amounts of owl habitat without the influence of over-snow travel and partially offset increased winter recreation intensity and expanding use areas in the northern portion of the Hermosa project area.

Selecting any project-level action alternative "may adversely impact individual boreal owls, but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing."

Northern Goshawk

The northern goshawk is widespread but uncommon breeding bird in most forested habitat types across SJNF. Most goshawks probably migrate out of the Hermosa project area in winter to lower elevations or areas further south. Goshawks have been documented in several locations in the Hermosa project area. Motorized over-ground recreation can affect use of nesting sites through the impact of disturbance within nesting stands. Given the large size of goshawk foraging area (*Reynolds 1992*), motorized recreation that is limited to designated routes is unlikely to alter overall hunting success across the larger home range.

For Alternatives 1, 2 and 4, all designated over-ground motorized travel routes have been open and available for motorized use for many years. For this reason, continuing to designate these routes as available for motorized use would not alter current habitat capability or potential for disturbance to goshawk nests that might be in proximity to these routes.

Several new motorized over-ground travel routes are proposed under Alternative 3, all of which pass through potential goshawk nesting habitat. For this reason, Alternative 3 has potential to increase disturbance within potential goshawk nesting stands in the project area.

All three action alternatives propose to increase the extent of goshawk habitat in the Hermosa project area that is potentially affected by over-ground travel; 36% under the current condition of Alternative 1, 39% under Alternatives 2 and 3, and 28% under Alternative 4.

Motorized over-ground travel under the route configuration proposed in Alternative 3 would increase the potential for disturbance to nesting goshawks, above that under current conditions because of the new motorized routes proposed under Alternative 3. However, the small increase in goshawk habitat potentially affected by the new routes proposed under Alternative 3 is unlikely to reduce viability of northern goshawk across the planning area, the entire SJNF.

Regardless of the project alternative selected, goshawks are likely to remain well distributed across the planning area. The wilderness portion of the Hermosa project area will continue to provide extensive amounts of goshawk habitat without the influence of over-ground travel that should partially offset the expected continued increase in over-ground motorized recreation on the existing designated trail network.

Selecting project-level Alternative 1, 2 or 4 will have "no impact" on northern goshawk. Selecting Alternative 3 "may adversely impact individual northern goshawks, but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing."

Rocky Mountain Bighorn Sheep

The Rocky Mountain bighorn sheep is widely distributed in five core herd home ranges across the central and western portions of the SJNF. The eastern edge of the Hermosa project area overlaps the core herd home range of the Vallecito Creek Herd S-71. This herd was established by translocated animals released by CPW in the early 2000s. A small number of sheep established resident home ranges for a few years along the northern end of the Hermosa Cliffs. However, animals have not been regularly detected in this area for almost 10 years.

For Alternatives 1, 2 and 4, all designated over-ground motorized travel routes have been open and available for motorized use for many years. For this reason, continuing to designate these routes as available for motorized use would not alter current habitat capability or potential for disturbance to bighorn sheep that might be in proximity to these routes.

Several new motorized over-ground travel routes are proposed under Alternative 3, one of which would pass through historic bighorn sheep use areas. For this reason, Alternative 3 could increase potential for disturbance within historic bighorn sheep use areas in the Hermosa project area. However, the small increase in sheep habitat potentially affected by the new route proposed under Alternative 3 is unlikely to reduce viability of bighorn sheep across the planning area, which is the entire SJNF. Regardless of the project alternative selected, bighorn sheep are likely to remain well distributed across the planning area.

Selecting Alternative 1, 2 or 4 will have "no impact" on Rocky Mountain bighorn sheep. Selecting Alternative 3 "may adversely impact individual Rocky Mountain bighorn sheep, but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing."

White-tailed Ptarmigan

White-tailed ptarmigan are endemic to alpine habitats of western North America, primarily at or above tree line. They also use riparian zones, meadows and willow carrs near tree line in the subalpine zone. In the Rocky Mountains, ptarmigan have a highly disjunct distribution, occurring at the highest elevations of mountain ranges that are often widely separated from adjacent ranges. Colorado supports the largest population of ptarmigan and greatest expanse of suitable habitat in the United States outside of Alaska (*Hoffman 2006*). Ptarmigan are known for their unwary behavior and habit of concentrating in large flocks in traditional use areas.

Individual adult ptarmigan have high site fidelity to preferred breeding and wintering areas. The single most important feature of habitats used by ptarmigan in Colorado is willow, which is their primary food source from late fall through spring. Any activity that reduces the distribution and

abundance of willow will likely have negative consequences to ptarmigan (*Hoffman 2006*). In winter, willows growing on exposed ridge tops are usually less than three feet tall and are rarely covered by snow. These areas are consistently used as feeding sites by ptarmigan throughout the winter.

Protecting and maintaining winter habitat for adult female ptarmigan is likely to be a key factor in ensuring long-term population persistence in the Hermosa project area. Maintenance and protection of winter habitat is especially important given the high site fidelity of wintering birds and the considerable numbers of adult females that are attracted from surrounding breeding habitats to the few suitable wintering sites (*Braun 1976*).

With increased winter recreation across the Forest and within the Hermosa project area, there is likely to have also been increased disturbance and snow compaction that has potential to displace individual birds away from preferred habitats where unconsolidated snow is retained, thereby reducing ptarmigan habitat effectiveness in high winter recreation use areas. Ptarmigan continue to be detected in some high-use winter recreation areas on the Forest but have become difficult to detect in other high-use areas near the Hermosa project area. This suggests ptarmigan use of particular areas may depend on the extent, intensity and duration of disturbance and snow compaction in over-snow play areas.

Under the current condition, about 1,791 acres of ptarmigan habitat occur in the Hermosa project area in large blocks of security habitat that are greater than 250 acres in size. These habitat security areas represent relatively large tracts that are relatively isolated from motorized access routes. These areas are important because they help offset the impacts of recreational disturbance in portions of the project area with greater proximity to winter recreational use areas, and they contribute to the maintenance of viable populations in more natural patterns of abundance and distribution in relation to preferred habitat types and foraging areas.

Within the Hermosa project area, only about 27% of ptarmigan habitat falls within one of these security habitat blocks. The ptarmigan security habitat blocks are entirely within the central, southern and western portions of the Hermosa project area. The northern third of the Hermosa project has no ptarmigan security areas because it is nearly all open to over-snow travel under all action alternatives. More than half of all ptarmigan security habitat in the project area is in the Hermosa Creek Wilderness. Conversely, about 73% of all ptarmigan habitat in the Hermosa project area is within 1/3 mile of a designated over-snow play area where potential for disturbance to wintering birds is greatest.

For white-tailed ptarmigan, the overall ranking of order of preference of project alternatives is Alternative 1, followed by Alternatives 4, 2 and 3, respectively, from least to most ptarmigan habitat potentially affected by over-snow travel. This ranking is based on the proposed activities and potential infrastructure developments described above, and the greater influence that over-snow motorized travel is likely to have on ptarmigan habitat use, compared to over-ground motorized travel.

All three action alternatives propose to increase the extent of ptarmigan habitat in the Hermosa project area that is potentially affected by over-snow travel: 23% under the current conditions Alternative 1, 72% under Alternatives 2 and 3, and 59% under Alternative 4.

Motorized over-snow travel may temporarily displace individual ptarmigan but over-snow travel in the Hermosa project area is unlikely to reduce viability of ptarmigan across the planning area, the entire SJNF. Regardless of the project alternative selected, ptarmigan are likely to remain well distributed across the planning area. The wilderness portion of the Hermosa project area will continue to provide security habitat blocks that should partially offset increased winter recreation intensity and expanding use areas in the northern portion of the Hermosa project area.

Selecting any project-level action alternative "may adversely impact individual white-tailed ptarmigan, but is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing."

Management Indicator Species

Affected Environment

The Forest Plan establishes management direction for Management Indicator Species (MIS). Forest Plan direction for MIS addresses maintaining healthy populations. Due to the large number of species that occupy National Forest System lands, a subset of species is identified for analysis purposes that are intended to represent the full range of species. This subset is collectively referred to as MIS. The Forest Plan establishes goals, objectives, standards, guidelines, and monitoring requirements that are specific to MIS. Each action proposed by the agency is analyzed in a manner that discloses its effects to MIS and evaluates its consistency with the management direction contained in the Forest Plan. The analysis then determines what effect project-level impacts might have on Forest-level population and habitat trends for each MIS.

This analysis is based on the best available science such as the most recent Forest-wide habitat and individual MIS assessments, expert professional opinions, and site-specific field review of the analysis area. The most recent Forest-wide habitat and species assessments explain the reasons for MIS selection in the Forest Plan, and contain information on the species life history, conservation status, distribution and abundance on the Forest and on each Ranger District, and population and habitat trends. The following analyses are tiered to, and reference the Forest-wide species and habitat assessments and their content will not be repeated here. The assessments are on file at the Columbine Ranger District office.

All MIS identified in the Forest Plan and reasons for their selection are considered during initial project screening. A detailed analysis was then conducted for those MIS that may be affected by the action alternatives. The analysis describes how the alternatives would likely affect Forest-wide habitat and population trends, and is intended to disclose the potential effects of the action on MIS and their habitats in a manner that identifies the relationship between the action being considered and the long-term viability of the MIS on the administrative unit, the entire SJNF.

The MIS analyzed in detail have either been observed or reported on FS lands in the Hermosa project area. Additionally, all MIS have habitat that is well distributed across the SJNF. It should also be noted that within and adjacent to FS lands in the Hermosa project area, there are large amounts of habitat in similar condition, and this habitat is well distributed across the area and connected to the larger National Forest administrative unit. The Hermosa project area does not provide unique or isolated habitats within which discrete populations are restricted. None of the MIS are species at risk nor are they species that are trending towards protected status. They are

well distributed across the SJNF. For some MIS, such as elk, there appears to be no relationship between habitat trends and population trends, with population trends regulated primarily by state hunting season structures.

Existing habitat for each MIS on FS lands was determined by the use of Geographical Information System modeling using vegetative information described in Forest-wide MIS Assessments. Habitat modeling was conducted using habitat structural stage matrices described by Towry (*1984*). In addition, species information on distribution across the Forest, professional judgment of FS wildlife biologists, coordination with CPW biologists, coordination with the USFWS, and field reconnaissance of the Hermosa project area was also used.

There are four terrestrial species identified as MIS in the 2013 SJNF Forest Plan: Abert's squirrel, American marten, elk and hairy woodpecker. Of these four species, elk and hairy woodpecker are resilient species under a changing climate. Abert's squirrel is dependent on a drought tolerant species that may move in distribution, but is expected to persist. American Marten are moderately vulnerable to climate change as the spruce fir habitat is changing rapidly in the face of a spruce beetle epidemic, a western balsam bark beetle epidemic and larger and more severe wildfires. Abert's squirrel and hairy woodpecker are present in the analysis area, but the project alternatives and effects are not believed to be a limiting factor for the habitats they represent as MIS species. The Hermosa project project-level alternatives would not affect or change the forest-wide population or habitat trends for these two species and thus they are dismissed from further analysis.

Two terrestrial MIS have habitats they represent that dominate in the Hermosa project area and may be affected by project alternatives: American marten and elk. Elk use central portions of the Hermosa project area in spring for calving, all portions in summer, especially summer concentration areas, and lower elevation south facing slopes in southern portions of the Hermosa project area in winter. American marten are found across the Hermosa project area in mature coniferous and deciduous-coniferous forests. A winter track survey route in the Hermosa project area (Relay Creek) detects marten tracks each winter. American marten is also designated as a FS sensitive species and affects were also discussed above.

The mature spruce-fir and cool-moist mixed conifer forests of the Hermosa project area provide good foraging habitat for American marten due to the relatively large and undisturbed nature of many forested areas, due to the generally high amounts of large downed wood on the forest floor that provides ready access through the snow pack to the subnivean space, and due to the steep slopes of much of the landscape (*SJNF 2004*). American marten habitat consists of spruce-fir, cool-moist mixed conifer, high elevation aspen mixed with spruce-fir or cool-moist mixed conifer, and willow riparian adjacent to these habitats (*Buskirk 1994*). The Hermosa project area provides high quality marten habitat and sightings and tracks are common, even within the Purgatory Ski Area. The project area also provides high value travel corridors that link other adjacent large patches of suitable such as the La Plata Mountains to the south of the project area.

The Hermosa project area provides optimal hiding cover for elk in mature spruce-fir forests (*SJNF 2004c*). Foraging habitat for elk is abundant in summer in some alpine and krummholz areas. Elk generally occupy calving areas in the Hermosa project area during late spring after snow melt, and are present in most habitat types during summer and early fall. Elk generally

move to lower elevation and south facing areas in southern portions of the Hermosa project area when snow depth increases in late fall.

Elk was chosen for detailed analysis because much of the available research on the effects of recreational activities on wildlife is related to impacts of motorized vehicles on elk. Roads and motorized trails have the potential to be an influential element in how elk use key habitats on public lands. Motorized routes have many effects on habitat, but the most influential to big game is the effect of human disturbance within key habitat areas such as winter concentration areas and production areas. Motorized routes provide access into areas that otherwise may receive only light human use. In response to human disturbance in key habitat areas, animals may be forced to burn energy stores moving to avoid human presence. They may also be forced to abandon higher quality habitats and move to lower quality habitats potentially resulting in reduced productivity. They may also be displaced to areas where they are exposed to higher mortality rates.

Many sources have documented a decline in elk use of areas adjacent to roads. Elk habitat effectiveness is adversely influenced by the presence of roads and trails that are open to vehicular traffic. In general, habitat effectiveness decreases in proportion to the amount of open (motorized) routes per square mile of habitat.

To mitigate the potential negative effects of motorized routes on habitat use by big game animals, the Forest Plan established guidelines for maximum motorized route densities within key big game habitat areas, including elk production areas. The Forest Plan guideline for maximum recommended motorized route density within elk production areas is one linear mile of motorized route per square mile of elk production area habitat.

Under the current condition, elk production areas across the Hermosa project area have 1.1 miles of routes open to motorized use per square mile of elk production area, slightly above the Forest Plan guideline density of 1.0 mile per square mile of elk production area. However, the elk production unit that includes portions of the Relay Creek Road 580 and Cascade Divide Road 579 networks currently has 1.6 miles of motorized route per square mile of elk production area, well above the 1.0 mile per square mile Forest Plan guideline. The elk production unit that includes the Elbert Creek Road 581 and Dutch Creek single track motorized trail currently has 1.0 miles of motorized route per square mile of elk production area.

Environmental Consequences

Plan-Level Impacts

There are no changes to Forest Plan direction proposed under any of the Hermosa Plan-level alternatives that would be anticipated to result in future actions in the Hermosa project area that would lead to detectible changes in forest-wide habitat trends or population trends for any MIS.

Project-Level Impacts

A detailed Wildlife Review was conducted to analyze the impacts of the project alternatives to MIS. The full Wildlife Review is available in the project record (*Schultz 2017c*). Although all four species are present in the Hermosa project area, the project actions (motorized travel over-ground and over-snow) will not affect the species or their key habitat components. Table 5-7 lists the MIS for the SJNF, their preferred habitats, Forest-wide habitat and population trends, and effects of the alternatives.

TABLE 5-7. Management Indicator Species (MIS) on the SJNF.

MIS	Preferred Habitat; Forest-wide Habitat and Population Trends	Brought Forward for Detailed Analysis?	Effects of Alternative 1	Effects of Action Alternatives 2-4
Abert's Squirrel	Ponderosa pine; habitat trend stable, population trend increasing	No, squirrel habitat is present but would not be affected by project alternatives. No further analysis as MIS is necessary.	No Effects	No Effects
American marten	Spruce-fir and cool-moist mixed conifer; habitat trend stable, population trend declining	Yes, marten habitat is present in the project area and use of primary habitats may be affected by project alternatives.	No Effects	Would not measurably alter forest-wide habitat or population trends
Elk	All terrestrial habitats; pine, piñon-juniper, and mountain shrub/Gambel oak in the winter; habitat trend is stable to downward, population trend is stable	Yes, elk habitat is present in the project area and use of production and concentration areas are potentially affected by project alternatives.	No Effects	Would not measurably alter forest-wide habitat or population trends
Hairy Woodpecker	All forested types, aspen, and piñon-juniper; habitat trend is slight upward, population trend is stable	No, woodpecker habitat is present but would not be affected by project alternatives. No further analysis as MIS is necessary.	No Effects	No Effects

Changes in the amount of habitat resulting from this decision would be too small to be detectable at the Forest-wide scale. For this reason, selecting any of the action alternatives would not affect forest-wide habitat or population trends for any MIS.

To determine the amount of affected habitat, areas within 1/3 mile of a designated motorized route or within 1/3 mile of a designated over-snow play area were calculated for each project alternative. Animals residing in areas greater than 1/3 mile away from motorized routes and areas are less likely to be disturbed by motorized use than animals in close proximity to, or residing within, over-snow play areas and designated over-ground motorized routes.

Geographic Information System data, along with information from CPW was used to determine the location of potential elk security areas that are greater than 1/3 mile (*Lyon 1983*) from a road or trail open to motorized use. These habitat security areas represent relatively large (minimum of 250 contiguous acres), contiguous tracts of National Forest that are relatively isolated from motorized access routes. These large habitat security areas help offset the impacts of portions of the project area with greater proximity to motorized routes, and contribute to the maintenance of viable wildlife populations in more natural patterns of abundance and distribution in relation to preferred habitat types and foraging/birthing areas.

American Marten

The marten is both a sensitive species and an MIS; therefore refer to the sensitive species section, above, for a discussion on the impacts to marten from the alternatives.

Under Alternative 1, an average of 1.9% of forest-wide marten habitat is potentially affected by over-snow motorized travel, 3.4% under Alternatives 2 and 3, and 2.2% under Alternative 4. Therefore, selection of any of the action alternatives is unlikely to cause detectible changes in Forest-wide habitat trends or population trends for this species. It is possible however that expanding the extent of marten habitat in the Hermosa project area open to over-snow motorized recreation, such as under all three action alternatives, could contribute to the observed forest-wide downward trend in American marten detections.

Elk

Elk populations on the SJNF are controlled primarily by hunter harvest (*SJNF 2004c*) managed by CPW, and elk populations in the Hermosa project area are intentionally downward per their objectives. Elk populations are controlled primarily by hunter harvest and ultimately by winter range, most of which is on not on FS land, but on tribal and private land (*CDOW 2010*).

There is a total of about 13,570 acres of elk winter concentration area in the Hermosa project area. Under current condition, there are no seasonal restrictions on the use of motorized vehicles on routes designated as open to motorized over-ground travel. Under Alternatives 2, 3 and 4, allowable seasons of use are proposed to be from May 1 through November 14 or as late as December 31, depending on the route. About 46% of elk winter concentration area in the Hermosa project area is potentially affected by over-ground travel under Alternatives 2, 3 and 4. For this reason, the proposal to apply a seasonal restriction on motorized over-ground travel would benefit elk by reducing the potential for disturbance across large portions of elk winter concentration area.

Habitat effectiveness, particularly in winter range and production areas, can be negatively affected by motorized recreation. For this reason, the Forest Plan established guidelines for the density of motorized routes in key elk habitat areas. Currently, the density of designated motorized routes in elk production areas in the Hermosa project area is at about 1.1 miles of motorized route per square mile of elk production area, slightly above the Forest Plan guidance of one mile per square mile of elk production area.

Selecting Alternatives 1, 2 or 4 would not increase the average density of designated motorized routes within elk production areas above their current condition of 1.1 miles per square mile of elk production areas across the Hermosa project area. Selecting Alternative 3 however, would increase the average density of designated motorized routes within elk production areas to 1.6 miles per square mile of elk production area, well above the Forest Plan guideline.

Under Alternative 3, the density of motorized routes in two elk production units would increase from their current condition of 1.6 and 1.0 miles per square mile to about 2.4 and 1.6 miles per square mile, respectively. Expanding the network of designated motorized routes under Alternative 3 in the two elk production areas that currently exceed or are at the upper limit of Forest Plan guidelines for motorized route density could contribute to the existing intentionally downward trend in elk populations across the Hermosa data analysis unit.

Under current condition, about 27,580 acres of elk production area occur in the Hermosa project area within seven large blocks of security habitat. About 26,452 acres of elk summer concentration area also occur within these security habitat blocks. These habitat security areas represent relatively large tracts (greater than 250 acres in size) that are relatively isolated (more than 1/3 mile) from designated motorized routes. These security areas are important because they help offset the impacts of recreational disturbance in portions of the project area with closer proximity to motorized routes, and they contribute to the maintenance of viable wildlife populations in more natural patterns of abundance and distribution in relation to preferred habitat types and foraging/birthing areas.

Within the Hermosa project area about 68% of elk production area falls within one of these security habitat blocks. About half of all security habitat in the project area is in the Hermosa Creek Wilderness. Conversely, about 32% of all elk production areas in the Hermosa project area are within 1/3 mile of a designated over-ground travel route where potential for disturbance to animals is greatest. This indicates that many of the over-ground travel routes in the Hermosa project area overlap with important elk calving areas. One security habitat block north of the Relay Creek Road 580 would be somewhat reduced under Alternative 3 by designation of the Pasture Creek >50" motorized trail loop. While the proposal has potential to disturb some elk calving, within the project area, the majority of elk production areas are within large blocks of security habitat away from motorized uses.

Optimum cover:forage ratios for elk are considered to be about 60% cover to 40% forage. Currently in the Hermosa project area, the cover:forage ratio is 63:37, slightly more cover and less forage than what is considered optimum. It must be noted that cover and forage types were delineated by vegetation types and no overlap was allowed for cover and forage. There is a large amount of mature aspen in the Hermosa project area and mature aspen stands were categorized as cover instead of forage, even though these stands provide both cover and forage. This indicates that forage may have been underestimated in the Hermosa project area.

In the areas of the Hermosa project area affected by over-ground motorized travel, the cover:forage ratios for all alternatives are about 59:41, almost at optimum but slightly below that of the Hermosa project area overall. This indicates that cover may be somewhat limited in areas potentially affected by motorized use, as compared to conditions in the Hermosa project area overall. For this reason, it is logical to consider limiting the designation of new motorized routes and removing those routes that receive very little use, such as is proposed under Alternatives 4 and 2. It is also logical to consider the application of timing restrictions, such as is proposed for routes within elk winter range under all three action alternatives.

For elk, the overall ranking of order of preference of project alternatives is Alternative 4, followed by Alternatives 2, 1 and 3, respectively, from least to most elk habitat potentially affected. This ranking is based on the proposed activities and potential infrastructure developments described above. It also recognizes the likely benefits to elk of the proposal under Alternatives 2, 3 and 4 to apply a timing limitation on the use of motorized and mechanized use of designated routes, prohibiting over-ground motorized travel on routes during the important elk wintering season. This order of preference is also based on expanding the area of elk winter range open to over-snow motorized travel proposed under Alternatives 2, 3 and 4 as compared to Alternative 1. Motorized travel during winter has greater potential to affect individual animals

than during summer because motorized use is not limited to predictable routes but is allowed across large cross-country areas. This order of preference is also based on the proposal to expand the number of designated routes open to over-ground motorized use under Alternative 3, compared to Alternatives 2 and 4.

Population trends for elk are controlled primarily by annual hunter harvest and do not appear to be correlated with the amount of available habitat on the Forest. Under Alternative 1, the actions in the Hermosa project area would result in 0.6% of elk winter range Forest-wide potentially affected by over-snow motorized travel, compared to 0.4% under Alternative 4, and 1.3% under Alternatives 2 and 3.

Selecting Alternative 3 would further increase the density of motorized routes in two blocks of elk production areas which are already at or above the Forest Plan guideline of one mile of designated motorized routes per square mile of elk production area.

For all the reasons described above, selection of any of the action alternatives is unlikely to cause detectible changes in Forest-wide elk habitat trends or population trends.

Cumulative Impacts

For many wildlife species, habitat is perhaps the most important limiting and controlling factor for populations, particularly if it involves the loss of key habitat components integral to foraging, resting, breeding, and dispersal. Other limiting factors include habitat fragmentation and geographic isolation, prey availability, low population density, low reproductive potential, predation, weather, parasites and disease.

Past, present, and future management actions that affect listed, sensitive and MIS terrestrial wildlife species in the Hermosa project area and immediately adjacent non-federal lands include: timber management activities, mineral production, private land development, recreation activities, livestock grazing, and big-game hunting season regulations. All these activities alter or increase the impact human activities have on habitat conditions that support wildlife populations, such as reducing the size and effectiveness of wildlife security areas, fragmenting key habitat areas, and disrupting migration routes.

Some portions of the Hermosa project area, such as the area recently designated as the Hermosa Creek Wilderness, have had few human activities and thus have few cumulative effects on wildlife habitat conditions. Other portions of the Hermosa project area have had long histories of timber harvest, mining, motorized recreation, hunting, fishing and camping. These activities have reduced wildlife habitat conditions in some areas such as the Hotel Draw, Relay Creek, Cascade Creek, Upper Dutch Creek, and Bolam Pass areas. The current patterns of wildlife distribution and movement and use throughout the Hermosa SMA is a function of decades of human use and enjoyment of the Hermosa project area. Future projects will continue to affect wildlife distribution, abundance and habitat use patterns within the Hermosa project area. However, when these actions are added to the minimal impacts associated with implementing the Hermosa project alternatives, the cumulative effects to forest-wide habitat and population trends are considered to be minor.

Heritage and Cultural Resources

Affected Environment

Overviews of the prehistoric and historic contexts for the region are presented in Colorado Prehistory: A Context for the Southern Colorado River Basin (*Lipe et al. 1999*) and Colorado Plateau Country Historic Context (*Husband 1984*).

Significant cultural resources within the Hermosa Plan area include Protohistoric camps, the Harris Cabin, and the Rico-Rockwood Wagon Road. The area was sparsely inhabited prehistorically due to the steepness and elevation of the terrain which prohibits long-term prehistoric habitation throughout much of the landscape. Protohistoric sites are generally sites characterized as belonging to mobile hunter-gatherers. They are relatively poorly dated entries into this area and it is frequently difficult to distinguish Protohistoric Navajo and Ute sites from one another. Historic habitation is associated with mining and ranching activities that supported the surrounding towns.

The Harris Cabin is a good example of a turn of the century ranch homestead with its associated tack room and corral, is an excellent example of a late 19th/early 20th century ranch homestead. It is listed on the La Plata County Register of Historic Places. The Harris Ranch is named for John E. and Sterling Harris of La Plata, New Mexico who acquired the property in 1934 and used the area for summer pasture for their cattle business. The Purgatory Ski Resort purchased the ranch property from the Harris family in 1971 and used the property for recreational purposes. The property was transferred to the San Juan National Forest in a land exchange in 1991. In 2011, HistoriCorps rehabilitated the structures to maintain the site's historical significance and integrity and to prevent the irreplaceable and unavoidable loss of historic fabric.

The Rico-Rockwood Wagon Road connected the mines of Rico and the Animas Valley with the Durango-Silverton Narrow Gauge Railroad. In the project area, this wagon road entered the project area on the west in the area of Scotch Creek, coming from Rico, then branched and traveled down West Cross Creek on the south and Hotel Draw on the north. These two branches converged at the main stem of Hermosa Creek and followed what is now FS Road 578 east for approximately 2.4 miles. At this point it veers into the drainage and passed by the Harris Cabin in Hermosa Park and flowed through the Park exiting the watershed near the Purgatory Resort towards Rockwood to the southeast, where there is was (and still is) a train station. Most segments of the road are no longer visible as a historic road because of neglect and alterations to the road prism over the years, including overlying with modern roads. While many of the segments of the road are now overlain with modern Forest Service roads some of them still retain sufficient integrity of location, setting and feeling to warrant inclusion on the NRHP.

Approximately 4,000 acres have been surveyed in the Hermosa Plan area; there are 19 historic isolated finds, 66 historic sites, six multicomponent sites, 71 prehistoric isolated finds, and 45 prehistoric sites recorded to date. All isolated finds are by definition considered not eligible to the National Register of Historic Places (NRHP) because they do not meet the minimum criteria for inclusion. Of the 66 historic sites, 20 are considered not eligible to the NRHP, 2 require further study before a determination can be made, and 44 are considered eligible to the NRHP; these historic sites are primarily associated with the area's wagon roads, ranching and mines. Of the six multicomponent sites, two are not eligible to the NRHP, and four are eligible to the NRHP. Of the 45 prehistoric sites, 28 are not eligible to the NRHP, 12 require further study

before a determination can be made, and five are eligible to the NRHP; these sites are prehistoric camps that were used repeatedly in the past.

Environmental Consequences

Plan-Level

In the summer of 2015, the Columbine District Archeologist undertook a study aimed at reevaluating NRHP eligible, or needs data, sites within the watershed that are likely being impacted by current management practices in order to assess the need for a change in current management practices. Additionally, several previously unrecorded historic trails were located within the project and these were recorded for the same reasons. The Columbine District Archeologist concluded, and State Historic Preservation Office (SHPO) concurred, that the resources within the Hermosa Creek Watershed are not being negatively impacted by current management practices. Current management practices are based in Forest Plan guidance.

The three action alternatives include some proposed Forest Plan guidance that would provide even better protection for cultural resources; this will continue, and improve upon, the trend of Forest Plan guidance avoiding impacts on cultural resources. Alternative 1 does not include any Forest Plan amendment regarding cultural resources, and therefore won't change impacts.

Project-Level

In the summer of 2016, the Columbine District Archeologist analyzed the proposed draft travel management alternatives. In consultation with SHPO, it was determined that 100% survey should occur on trails where the proposed management increases the potential for site disturbance, where new trails are being added to the system, or where new trails or parking areas are being established. This included a section of the Dutch Creek Trail which is proposed to be changed from a non-motorized trail to a motorized trail in Alternative 3, the West Cross Creek Trail, bike trails within the Purgatory ski area, and several camping spurs slated for designation as roads. Additionally, the Colorado SHPO office requested that during fieldwork, if additional areas of use were identified, that they be surveyed. It was also determined that a sampling survey of areas within the travel corridor within the landscape should be conducted to assure that current management practices are not impacting previously unknown resources. The travel corridor is considered 300 feet on either side of the roads and 50 feet one either side of the trails. This resulted in 273 additional acres of block survey throughout the landscape, encompassing a mix of high potential and low potential for prehistoric resources and a variety of ecozones. Under the current proposed action, two new segments of the Rico-Rockwood Wagon Road came within the analysis area, these were proposed for recording, along with the historic Good Hope Stock Driveway. This strategy was agreed to in June 2016 by the SHPO Section 106 Compliance Manager. From this analysis the Columbine District Archeologist concluded, and SHPO agreed, that the FS proposed travel management alternatives were not impacting cultural resources and could proceed as proposed. A design criteria is included in all action alternatives that would require additional cultural surveys for site-specific ground disturbing activities if they have not already been surveyed, such as for implementation of proposed activities that do not have final designs at this time. Site avoidance or mitigation measures to avoid negative impacts would be developed at that time as necessary.

Since the initial proposed action was developed in 2016, several changes have occurred. These changes will be analyzed in the summer of 2017 and consulted on prior to the finalization of this EA. This EA section will be updated to reflect the most up-to-date work and any impacts that are found through this fieldwork.

Cumulative Impacts

Cumulative impacts are defined as the impacts of the proposed action added to impacts from other past, present, and reasonably foreseeable management activities. If there are no impacts from the proposed action, then there is no addition to those impacts, and there are by definition no cumulative impacts. The Columbine District Archeologist and SHPO have concluded that the Hermosa Plan and proposed actions contained therein have no impact to cultural resources. Therefore, there are no cumulative impacts.

Road, Trail, and Facility Costs

Affected Environment

Roads and trails in the Hermosa watershed were developed initially for mining and timber extraction. Many roads were engineered to access timber sales in the spruce-fir vegetation type in the northern end of the watershed. Some arterial roads and some trails also followed previously used wagon roads that historically supported mining and commerce. The road system includes secondary roads that branch off of the arterial roads to access timber sale areas. Recreation use followed, taking advantage of the road and trail system to access hunting and camping, or to access the edges of unroaded areas. Some roads were built and are currently still used for development and operation of the Purgatory Ski Area. Over the years, the road and trail network was further developed and today serves commercial, recreation, and administrative purposes.

The direct users of the road and trail system include federal and state agency personnel, recreationists, commercial users, scientists, students, hobbyists, collectors, and many others. Administrative use of roads and trails include construction and maintenance of forest facilities, management of forest land including fire management, wildlife habitat improvement, watershed and fisheries improvement, scientific study, law enforcement, contract administration including special uses, use by outfitter-guides, ski area operations, forest product collection, and grazing. Recreational use of roads and trails include bicycling, accessing trailheads, camping, hunting, fishing, pleasure driving, four-wheeling, OHV riding, horseback riding, picnicking, birding, site-seeing, and forest product gathering.

With the passage of the Hermosa legislation, much of the northern end of the watershed became classified as no longer suitable for commercial timber production, and the need for repeated road access into those areas in the future was greatly reduced.

Travel management regulations at 36 CFR 212.5(b)(1) and (2) require that the FS identify the minimum road system needed for safe and efficient travel for administration, utilization, and protection of National Forest System Lands, and to identify roads that are no longer needed to meet forest resource management objectives for decommissioning or consideration for other uses, such as trails. In determining the minimum road system, the responsible official must incorporate a science-based travel analysis. The outcome of the travel analysis is meant to guide future travel management decisions affecting use, operation and maintenance of the minimum road system based on the physical, biological, social, and economic benefits and risks of roads. The travel regulations at 36 CFR 212.55 also direct the FS to consider the need and availability of resources for maintenance and administration and of roads and motorized trails that would arise if the proposed uses are designated.

A *Travel Analysis Process* (TAP) was conducted for the Columbine Ranger District in 2011, which made recommendations for the road and motorized trail systems. TAP is a science-based examination of benefits and risks of individual roads and motorized trails, which results in recommendations for which routes should be added or removed from the Forest transportation system, which routes should be changed for type of use or maintenance level, and considers a minimum road system needed for management of the resources. The 2011 TAP document explains the process used to arrive at those recommendations including descriptions of risk/benefit categories, the risk/benefit ranking process, and calculation of cost estimates for road

maintenance. The TAP can be found in the project file at the Columbine Ranger District (*SJNF 2011*), or is available upon request.

The TAP recommendations for motorized roads and trails in the Hermosa watershed were re-evaluated during the analysis for this EA because of new information and changed conditions, most notably the new designation of the Special Management Area, the wilderness, and the purposes, prohibitions, and requirements that were included in the Hermosa Creek legislation. TAP risk/benefit rankings were updated for all roads and motorized trails in the watershed, and the updated table is located in the project file or available upon request (*SJNF 2017*). It was updated to include dispersed campsite spur roads, which were not originally rated, and to re-evaluate risk/benefit rankings and recommendations based on more current or detailed information, or because of a changed condition.

Developed recreation facilities in the project area include developed campgrounds, trailheads, toilets, and interpretive sites. Recently, the SJNF undertook a Recreation Site Analysis (RSA) (*SJNF 2016*), which is an analytical and advisory document intended to inform recreation program investment and site management strategies for the next five years. The overall goal is to ensure long-term sustainability for the developed recreation program in light of changing fiscal realities, technologies, and visitor demands. Over the last decade the SJNF has undergone significant reductions in allocations for recreation programs, and the RSA provides an opportunity to put recreation site assets and liabilities in line with projected future funding and staffing levels. The recommendations resulting from that process have been considered in this Hermosa analysis, although not all recommendations were incorporated into the proposed action.

Economic Consequences

Plan-Level Impacts

The proposed Forest Plan amendment under Alternatives 2 and 3 allows for, and includes objectives encouraging, future actions for vegetation management for the purposes of increasing forest health and resilience (in differing degrees in each action alternative), and for future actions supporting the cutthroat trout reintroduction program. Future implementation of these Plan objectives under any of the action alternatives has the potential for use of system or temporary roads, however, because there are no specific proposed activities at this time, it is not possible to determine specific impacts.

Plan-level action alternatives vary as to how net trail mileage would be addressed. Alternative 2 includes a guideline that would discourage increasing the total trail mileage within the watershed, which would be preferable from a financial standpoint. Alternatives 3 and 4 would allow an increase in trail mileage, which would incur additional maintenance costs, but again, until site-specific proposals are made in the future, the degree of specific impacts in unknown.

All action alternatives include guidance that encourage interpretive signing, which is at odds with the RSA recommendation to decommission the Hermosa Park interpretive site.

Project-Level Impacts

The differences in developed facilities proposed in each alternative are displayed in Table 4-4, and the differences in miles of roads and trails are summarized in Table 4-5, in Section 4.0 above. A rough cost comparison of each alternative is displayed in Table 5-8 below, which includes average costs of annual maintenance for the proposed minimum road system under each alternative, as well as implementation costs for the major implementation items in each alternative. The road maintenance costs shown do not represent a full maintenance cycle for every mile of road within the watershed; instead, they reflect what the typical amortized annual cost would be for maintenance of each type of road. For details of how costs were calculated, please see the TAP document (*SJNF 2011*). There were few needs identified for physically decommissioning of ML1s that are proposed to be removed from the system, as they are already revegetating and in satisfactory condition.

TABLE 5-8. Comparison of Engineering Costs by Alternative.

Item		Alt. 1 Current	Alt. 2 Proposed	Alt. 3	Alt. 4
ROAD MAINTENANCE	ML1 @$12/mile annually	$1,512	$828	$1,584	$744
	ML2 @$134/mile annually	$4,690	$5,896	$4,824	$6,164
	ML3 @$1,073/mile annually	$23,606	$15,022	$23,606	$12,876
TOTAL ANNUAL ROAD MAINTENANCE		**$29,808**	**$21,746**	**$30,014**	**$19,784**
ROAD PROJECTS	Full bridge at 577/E. Fork crossing	$0	$750,000	$750,000	$0
	OHV Bridge at 577/E. Fork	$0	$0	$0	$65,000
	578/581 Elbert OHV Parking + toilet install	$0	$75,000	$75,000	$0
	Full bridge at 578/main stem crossing	$0	$500,000	$500,000	$0
	581 Strawberry Patch parking gravel	$0	$0	$50,000	$0
	New Gates Install @ $3,000 each	$0	$12,000	$12,000	$6,000
	Gravel camp spurs @ $65,000/mile	$0	$130,000	$150,000	$110,000
	Boulders at 8 dispersed camp sites north of trailhead	$0	$16,000	$0	$16,000
	Boulders and rip select camp spurs	$0	$1,500	$0	$1,900
	Decommission/rip 0.35 mi @ 576A Lower Herm	$0	$2,700	$0	$2,700
TRAIL PROJECTS	Remove S. Fork Trail bridge	$0	$19,000	$0	$19,000
	New Construction CT segment @ Tin Can Basin 0.6 miles	$0	$30,000	$30,000	$0
	Bring Cutthroat Trail to standard	$0	$100,000	$100,000	$0
	Bring W. Cross Trail to standard	$0	$30,000	$30,000	$30,000
FACILITIES PROJECTS	New campground @ Hermosa Park	$0	$400,000	$400,000	$400,000
	Demolition of old trailhead @ 577	$0	$0	$0	$35,000
	Removal of toilet @ Sig CG	$0	$8,000	$0	$8,000
TOTAL ONE-TIME PROJECTS		**$ 0**	**$2,074,200**	**$2,097,000**	**$693,600**

The estimated difference between current (Alternative 1) and proposed (Alternative 2) annual road maintenance costs is about $8,000, which could be used to address priority deferred maintenance tasks, to increase maintenance visit frequency to priority ML2 locations, or to respond to emergency situations such as washouts or slumps. The SJNF has a total Forest road mileage of about 2,600 miles, and the appropriated budget allocation for road maintenance and management of roads averaged $1,054,000 from 2012 through 2015, resulting in unmet maintenance needs. The balance between maintenance funding and maintenance demand would be improved by either Alternative 2 or 4, but not fully addressed.

Alternatives 2 and 3 would result in one-time implementation costs of over two million dollars, while Alternative 4 costs would be under one million. These figures are rough estimates based on costs for similar projects that have been completed in the past, and on professional estimates from SJNF staff; final and more accurate costs would not be known until actual specifications and/or contracts were drawn up for each item. Authorized facilities, roads, and trail upgrades, and decommissioning tasks would not occur unless funding is available. Current Forest budgets would not support most of the items listed above; however, funding could come from a variety of sources, including appropriated agency funds, earmarked or off-the-top funds, grants, or partnerships.

The proposals in this EA correspond with the RSA recommendations except for the Upper Hermosa Trailhead site; all of the action alternatives propose to re-develop the trailhead and add a developed campground in this general vicinity, which contradicts the RSA recommendations of reducing service frequency and/or decommissioning. However, the RSA acknowledged that the Hermosa Plan decision will take precedence. The proposals in this EA take into account the increasing recreational usage of Hermosa Park, especially after the designation of the Special Management Area. This EA also considered the inter-connectedness of recreational usage in the entire upper watershed rather than site-by-site, and considered how other factors in the proposals would affect the need for a campground; for example, restrictions on driving off-road for dispersed camping, closure of some camp spurs, and closure of Sig Creek Campground would increase the demand for approved places to camp.

Cumulative Impacts

Past actions have impacted developed facility, road and trail expenses in the watershed. The passage of the Hermosa legislation created the wilderness, which increases costs of trail maintenance on those trails. The designation of the SMA may bring more recreational usage to the watershed, which could increase maintenance needs and demands for facilities. Other management activities that have impacted (and continues to impact) roads and trails in the watershed is the development and operation of the ski area, which uses and maintains the ML1 roads and trails within their permit boundary.

Future activities that could occur which could impact road trail costs would be a variety of projects that would implement the proposals as described in the alternatives of this EA; this could include forest health actions, reforestation, salvage of insect killed timber to prevent catastrophic wildfire, and other potential actions. All of these actions would of course have a

financial cost primarily to roads, but none of them are considered reasonably foreseeable at this time, with the exception of one reforestation project that is currently in planning.

Cumulatively, road costs in the watershed may be decreasing, and trail costs may be increasing, but at the Forest-wide scale, the economic impacts are negligible.

ACRONYMS and REFERENCES

CFR – Code of Federal Regulations

CPW – Colorado Parks and Wildlife

CRA – Colorado Roadless Area

CRCT – Colorado River cutthroat trout

EA – Environmental Assessment

FS – Forest Service

MIS – Management Indicator Species

ML – Maintenance Level

MVUM – Motor Vehicle Use Map

NEPA – National Environmental Policy Act

NRHP – National Register of Historic Places

OHV – off-highway vehicle

OSVUM – Over-snow Vehicle Use Map

PFC – Proper Functioning Condition

RNA – Research Natural Area

ROS – Recreation Opportunity Spectrum

SHPO – State Historic Preservation Office

SJNF – San Juan National Forest

SMA – Special Management Area

TAP – Travel Analysis Process

USFWS – United States Fish and Wildlife Service

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Colorado Parks and Wildlife
Colorado State Historic Preservation Officer
La Plata County
San Juan County
Town of Silverton
US Congressman Scott Tipton
US Senator Michael Bennet
USDI Fish and Wildlife Service

Tribes and Pueblos:

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Navajo Nation
Ohkay Owinge
Pueblo de Cochiti
Pueblo of Acoma
Pueblo of Isleta
Pueblo of Jemez
Pueblo of Laguna
Pueblo of Nambe
Pueblo of Picuris
Pueblo of Pojoaque
Pueblo of San Felipe
Pueblo of San Ildefonso
Pueblo of Sandia
Pueblo of Santa Ana
Pueblo of Santa Clara
Pueblo of Santo Domingo
Pueblo of Tesuque
Pueblo of Zia
Southern Ute Indian Tribe
Taos Pueblo
Uintah and Ouray Tribe
Ute Mountain Ute Tribe
Ysleta del Sur Pueblo
Zuni Pueblo

Organizations/FS Permit-holders:

Anne Rapp Inc DBA Rapp Corral
Backcountry Hunters and Anglers
Colorado Snowmobile Association
COHVCO/Trails Preservation Alliance
Creeper Jeepers
Durango Mountain Caballeros
Durango Mountain Caballeros
Four Corners Backcountry Horsemen
Great Old Broads for Wilderness
Mangus 5
Montrose Forest Products
Mountain Studies Institute
Public Access Preservation Association
Purgatory Ski Area
San Juan Citizens' Alliance
San Juan Mountains Association
San Juan Sledders
San Juan Trail Riders
San Juan Untracked
Seventy Seven Outfit
T Bar M Outfitters
Taylor Guide and Outfitting
The Wilderness Society
Trails 2000
Trout Unlimited
Wild Earth Guardians

APPENDIX A - Hermosa Creek Watershed Protection Legislation

PUBLIC LAW 113-291 – DEC. 19, 2014

CARL LEVIN AND HOWARD P. "BUCK"
MCKEON NATIONAL DEFENSE
AUTHORIZATION ACT FOR FISCAL YEAR
2015

SEC. 3062. HERMOSA CREEK WATERSHED PROTECTION. 16 USC 539q.

(a) DEFINITIONS.-In this section:

(1) CITY.-The term "City" means the city of Durango, Colorado.

(2) COUNTY.-The term "County" means La Plata County, Colorado.

(3) SECRETARY.-The term "Secretary" means the Secretary of Agriculture.

(4) SPECIAL MANAGEMENT AREA.-The term "Special Management Area" means the Hermosa Creek Special Management Area designated by subsection (b)(l).

(5) STATE.-The term "State" means the State of Colorado.

(b) DESIGNATION OF HERMOSA CREEK SPECIAL MANAGEMENT AREA.-

(1) DESIGNATION.-Subject to valid existing rights, certain Federal land in the San Juan National Forest comprising approximately 70,650 acres, as generally depicted on the map entitled "Proposed Hermosa Creek Special Management Area and Proposed Hermosa Creek Wilderness Area" and dated November 12, 2014, is designated as the "Hermosa Creek Special Management Area".

(2) PURPOSE.-The purpose of the Special Management Area is to conserve and protect for the benefit of present and future generations the watershed, geological, cultural, natural, scientific, recreational, wildlife, riparian, historical, educational, and scenic resources of the Special Management Area.

(3) ADMINISTRATION.-

(A) IN GENERAL.-The Secretary shall administer the Special Management Area-

(i) in a manner that conserves, protects, and manages the resources of the Special Management Area described in paragraph (2); and

(ii) in accordance with-

(I) the National Forest Management Act of 1976 (16 U.S.C. 1600 et seq.);

(II) this Act; and

(III) any other applicable laws.

(B) USES.-

(i) IN GENERAL.-The Secretary shall allow only such uses of the Special Management Area as the Secretary determines would further the purposes described in paragraph (2).

(ii) MOTORIZED AND MECHANIZED VEHICLES.-

(I) IN GENERAL.-Except as provided in subclause (II) and as needed for administrative purposes or to respond to an emergency, the use of motorized or mechanized vehicles in the Special Management Area shall be permitted only on roads and trails designated by the Secretary for use by those vehicles.

(II) OVERSNOW VEHICLES.-The Secretary shall authorize the use of snowmobiles and other oversnow vehicles within the Special Management Area-

(aa) when there exists adequate snow coverage; and

(bb) subject to such terms and conditions as the Secretary may require.

(iii) GRAZING.-The Secretary shall permit grazing within the Special Management Area, if established before the date of enactment of this Act, subject to all applicable laws (including regulations) and Executive orders.

(iv) PROHIBITED ACTIVITIES.-Within the area of the Special Management Area identified as "East Hermosa Area" on the map entitled "Proposed Hermosa Creek Special Management Area and Proposed Hermosa Creek Wilderness Area" and dated November 12, 2014, the following activities shall be prohibited:

(I) New permanent or temporary road construction or the renovation of existing nonsystem roads, except as allowed under the final rule entitled "Special Areas; Roadless Area Conservation; Applicability to the National Forests in Colorado" (77 Fed. Reg. 39576 (July 3, 2012)).

(II) Projects undertaken for the purpose of harvesting commercial timber (other than activities relating to the harvest of merchantable products that are byproducts of activities conducted for ecological restoration or to further the purposes described in this section).

(4) STATE AND FEDERAL WATER MANAGEMENT.-Nothing in this subsection affects the potential for development, operation, or maintenance of a water storage reservoir at the site in the Special Management Area that is identified in-

(A) pages 17 through 20 of the Statewide Water Supply Initiative studies prepared by the Colorado Water Conservation Board and issued by the State in November 2004; and

(B) page 27 of the Colorado Dam Site Inventory prepared by the Colorado Water Conservation Board and dated August 1996.

(5) WITHDRAWAL.-

(A) IN GENERAL.-Subject to valid rights in existence on the date of enactment of this Act and except as provided in subparagraph (B), the Federal land within the Special Management Area is withdrawn from-

(i) all forms of entry, appropriation, and disposal under the public land laws;

(ii) location, entry, and patent under the mining laws; and

(iii) operation of the mineral leasing, mineral materials, and geothermal leasing laws.

(B) EXCEPTION.-The withdrawal under subparagraph (A) shall not apply to the areas identified as parcels A

and B on the map entitled "Proposed Hermosa Creek Special Management Area and Proposed Hermosa Creek Wilderness Area" and dated November 12, 2014.

(6) WINTER SKIING AND RELATED WINTER ACTIVITIES.-Nothing in this subsection alters or limits-

(A) a permit held by a ski area;

(B) the implementation of the activities governed by a ski area permit; or

(C) the authority of the Secretary to modify or expand an existing ski area permit.

(7) VEGETATION MANAGEMENT.-Nothing in this subsection prevents the Secretary from conducting vegetation management projects within the Special Management Area-

(A) subject to--

(i) such reasonable regulations, policies, and practices as the Secretary determines to be appropriate; and

(ii) all applicable laws (including regulations); and

(B) in a manner consistent with-

(i) the purposes described in paragraph (2); and

(ii) this subsection.

(8) WILDFIRE, INSECT, AND DISEASE MANAGEMENT.-ln accordance with this subsection, the Secretary may-

(A) carry out any measures that the Secretary determines to be necessary to manage wildland fire and treat hazardous fuels, insects, and diseases in the Special Management Area; and

(B) coordinate those measures with the appropriate State or local agency, as the Secretary determines to be necessary.

(9) MANAGEMENT PLAN.-Not later than 3 years after the date of enactment of this Act, the Secretary shall develop a management plan for the long-term protection and management of the Special Management Area that-

(A) takes into account public input; and

(B) provides for recreational opportunities to occur within the Special Management Area, including skiing, biking, hiking, fishing, hunting, horseback riding, snowmobiling, motorcycle riding, off-highway vehicle use, snowshoeing, and camping.

(10) TRAIL AND OPEN AREA SNOWMOBILE USAGE.-Nothing in this subsection affects the use or status of trails authorized for motorized or mechanized vehicle or open area snowmobile use on the date of enactment of this Act.

(11) STATE WATER RIGHTS.-Nothing in this subsection affects access to, use of, or allocation of any absolute or conditional water right that is-

(A) decreed under the laws of the_ State; and

(B) in existence on the date of enactment of this Act.

(c) HERMOSA CREEK WILDERNESS.-

(1) DESIGNATION OF WILDERNESS.-Section 2(a) of the Colorado Wilderness Act of 1993 (16 U.S.C. 1132 note; 107 Stat. 756; 114 Stat. 1955; 116 Stat. 1055) is amended by adding at the end the following:

"(22) Certain land within the San Juan National Forest that comprises approximately 37,236 acres, as generally depicted on the map entitled 'Proposed Hermosa Creek Special

Management Area and Proposed Hermosa Creek Wilderness Area' and dated November 12, 2014, which shall be known as the 'Hermosa Creek Wilderness'.".

(2) EFFECTIVE DATE.-Any reference contained in the Wilderness Act (16 U.S.C. 1131 et seq.) to the effective date of that Act shall be considered to be a reference to the date of enactment of this Act for purposes of administering the wilderness area designated by section 2(a)(22) of the Colorado Wilderness Act of 1993 (16 U.S.C. 1132 note; 107 Stat. 756; 114 Stat. 1955; 116 Stat. 1055) (as added by paragraph (1)).

(3) FIRE, INSECTS, AND DISEASES.-In accordance with section 4(d)(l) of the Wilderness Act (16 U.S.C. 1133(d)(l)), within the wilderness areas designated by section 2(a)(22) of the Colorado Wilderness Act of 1993 (16 U.S.C. 1132 note; 107 Stat. 756; 114 Stat. 1955; 116 Stat. 1055) (as added by paragraph (1)), the Secretary may carry out any measure that the Secretary determines to be necessary to control fire, insects, and diseases, subject to such terms and conditions as the Secretary determines to be appropriate.

(d) DURANGO AREA MINERAL WITHDRAWAL.-

(1) WITHDRAWAL.- Subject to valid existing rights, the land and mineral interests described in paragraph (2) are withdrawn from all forms of-

(A) entry, appropriation, and disposal under the public land laws;

(B) location, entry, and patent under the mining laws; and

(C) disposition under all laws relating to mineral leasing, geothermal leasing, or mineral materials.

(2) DESCRIPTION OF LAND AND MINERAL INTERESTS.-The land and mineral interests referred to in paragraph (1) are the Federal land and mineral interests generally depicted within the areas designated as "Withdrawal Areas" on the map entitled "Perins Peak & Animas City Mountain, Horse Gulch and Lake Nighthorse Mineral Withdrawal" and dated April 5, 2013.

(3) PUBLIC PURPOSE CONVEYANCE.- Notwithstanding paragraph (1), the Secretary of the Interior may convey any portion of the land described in paragraph (2) that is administered by the Bureau of Land Management to the City, the County, or the State-

(A) pursuant to the Act of June 14, 1926 (commonly known as the "Recreation and Public Purposes Act") (43 U.S.C. 869 et seq.); or

(B) by exchange in accordance with applicable laws (including regulations).

(e) CONVEYANCE OF BUREAU OF LAND MANAGEMENT LAND TO COUNTY.-

(1) IN GENERAL.-On the expiration of the permit numbered COC 64651 (09) and dated February 24, 2009, on request and agreement of the County, the Secretary of the Interior shall convey to the County, without consideration and subject to valid existing rights, all right, title, and interest of the United States in and to the land described in paragraph (2), subject to---

(A) paragraph (3);

(B) the condition that the County shall pay all administrative and other costs associated with the conveyance; and

(C) such other terms and conditions as the Secretary of the Interior determines to be necessary.

(2) DESCRIPTION OF LAND.-The land referred to in paragraph (1) consists of approximately 82 acres of land managed by the Bureau of Land Management, Tres Rios District, Colorado, as generally depicted on the map entitled "La Plata County Grandview Conveyance" and dated May 5, 2014.

(3) USE OF CONVEYED LAND.-The Federal land conveyed pursuant to this subsection may be used by the County for any public purpose, in accordance with the Act of June 14, 1926 (commonly known as the "Recreation and Public Purposes Act") (43 U.S.C. 869 et seq.).

(4) REVERSION.-If the County ceases to use a parcel of the Federal land conveyed pursuant to this subsection in accordance with paragraph (1), title to the parcel shall revert to the Secretary of the Interior, at the option of the Secretary of the Interior.

(f)MOLAS PASS RECREATION AREA; WILDERNESS STUDY AREA RELEASE; WILDERNESS STUDY AREA TRANSFER OF ADMINISTRATIVE JURISDICTION.-

(1)MOLAS PASS RECREATION AREA.-

(A) DESIGNATION.-The approximately 461 acres of land in San Juan County, Colorado, that is generally depicted as "Molas Pass Recreation Area" on the map entitled "Molas Pass Recreation Area and Molas Pass Wilderness Study Area" and dated November 13, 2014, is designated as the "Molas Pass Recreation Area".

(B) USE OF SNOWMOBILES.-The use of snowmobiles shall be authorized in the Molas Pass Recreation Area-

(i) during periods of adequate snow coverage;

(ii) in accordance with the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) and other applicable laws (including regulations);

(iii) on designated trails for winter motorized travel and grooming;

(iv) in designated areas for open area motorized travel; and

(v) subject to such terms and conditions as the Secretary may require.

(C) OTHER RECREATIONAL OPPORTUNITIES.-ln addition to the uses authorized under subparagraph (B), the Secretary may authorize other recreational uses in the Molas Pass Recreation Area.

(2) MOLAS PASS WILDERNESS STUDY AREA.-

(A) TRANSFER OF ADMINISTRATIVE JURISDICTION.-Administrative jurisdiction over the Federal land generally depicted as "Molas Pass Wilderness Study Area" on the map entitled "Molas Pass Recreation Area and Molas Pass Wilderness Study Area", and dated November 13, 2014, is transferred from the Bureau of Land Management to the Forest Service.

(B) ADMINISTRATION.- The Federal land described in subparagraph (A) shall-

(i) be known as the "Molas Pass Wilderness Study Area "·and

(ii) be administered by the Secretary, so as to maintain the wilderness character and potential of the Federal land for inclusion in the National Wilderness Preservation System.

(3) RELEASE.-

(A) FINDING.-Congress finds that the land described in subparagraph (C) has been adequately studied for wilderness designation under section 603 of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1782).

(B) RELEASE.-Effective beginning on the date of enactment of this Act, the land described in subparagraph (C)-

(i) shall not be subject to section 603(c) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1782(c));

(ii) shall be managed in accordance with land management plans adopted under section 202 of that Act (43 U.S.C. 1712); and

(iii) shall not be subject to Secretarial Order 3310 issued on December 22, 2010.

(C) DESCRIPTION OF LAND.-The land referred to in subparagraphs (A) and (B) is the approximately 461 acres located in the West Needles Contiguous Wilderness Study Area of San Juan County, Colorado, that is generally depicted as "Molas Pass Recreation Area" on the map entitled "Molas Pass Recreation Area and Molas Pass Wilderness Study Area" and dated November 13, 2014.

(g) GENERAL PROVISIONS.-

(1) FISH AND WILDLIFE.-Nothing in this section affects the jurisdiction or responsibility of the State with regard to fish and wildlife in the State.

(2) MAPS AND LEGAL DESCRIPTIONS.-

(A) IN GENERAL.-As soon as practicable after the date of enactment of this Act, the Secretary or the Secretary of the Interior, as appropriate, shall prepare maps and legal descriptions of-

(i) the Special Management Area;

(ii) the wilderness area designated by the amendment made by subsection (c)(l);

(iii) the withdrawal pursuant to subsection (d);

(iv) the conveyance pursuant to subsection (e);

(v) the recreation area designated by subsection (f)(l); and

(vi) the wilderness study area designated by subsection (f)(2)(B)(i).

(B) FORCE OF LAW.-The maps and legal descriptions prepared under subparagraph (A) shall have the same force and effect as if included in this section, except that the Secretary concerned may correct any clerical or typographical errors in the maps and legal descriptions.

(C) PUBLIC AVAILABILITY.-The maps and legal descriptions prepared under subparagraph (A) shall be on file and available for public inspection in the appropriate offices of the Forest Service and the Bureau of Land Management.

(3) ADJACENT MANAGEMENT.-

(A) IN GENERAL.-Nothing in this section establishes a protective perimeter or buffer zone around-

(i) the Special Management Area;

(ii) the wilderness area designated by an amendment made by subsection (c)(l); or

(iii) the wilderness study area designated by subsection (f)(2)(B)(i).

(B) NONWILDERNESS ACTIVITIES.- The fact that a nonwilderness activity or use can be seen or heard from areas within the wilderness area designated by an amendment made by subsection (c)(l) or the wilderness study area designated by subsection (f)(2)(B)(i) shall not preclude the conduct of the activity or use outside the boundary of the wilderness area or wilderness study area.

(4) MILITARY OVERFLIGHTS.- Nothing in this section restricts or precludes-

(A) any low-level overflight of military aircraft over an area designated as a wilderness area under an amendment made by this section, including military overflights that can be seen, heard, or detected within the wilderness area;

(B) flight testing or evaluation; or

(C) the designation or establishment of-

(i) new units of special use airspace; or

(ii) any military flight training route over a wilderness area described in subparagraph (A).